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ANALYSIS OF THE US NAVY'S
AVIATION DLR WORKLOAD FORECASTING

by

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ASO was visited to gather actual and forecasted data on DLR repair workloads. Data was also obtained from the Navy Aviation Depot Operations Center. An analysis of policies and procedures used by ASO in preparing workload forecasts was conducted.

Recommendations are made to improve the management of depot level.

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Analysis of the US NAVY's Aviation
DLR Workload Forecasting

by

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Submitted in partial fulfillment
of the requirements for the degree of

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ABSTRACT

This thesis examines the repair workload forecasting for depot level repairables (DLR's) managed by the Aviation Supply Office (ASO) and overhauled by Navy Aviation Depots (NADEPs).

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Recommendations are made to improve the management of depot level repairables.

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I. INTRODUCTION

A. BACKGROUND

This thesis will examine the steps used by the Aviation Supply Office (ASO) to forecast the repair workload for Depot Level Repairables (DLRs). The workload forecast for DLRs, as used in this thesis, refers to the number of units of not-ready-for-issue (NRFI) DLRs that will have to be successfully repaired at a Navy Aviation Depot (NADEP) in order to meet forecasted demands for that DLR.

B. OBJECTIVES

The objectives of this research are to:

1. Describe the policies and procedures used by ASO to forecast repair workload for aviation DLRs.
2. Examine the effects of forecasting DLR workloads using the policies and procedures currently in use at ASO.
3. Describe the forecasting cycle currently used at ASO.
4. Examine each segment of the computation for forecasting of the DLR workloads to identify possible alternatives to current procedures and to improve these forecasts.

C. METHODOLOGY

The initial literature search revealed numerous Navy Instructions and Defense Logistic Studies Information Exchange (DLSIE) reports that stressed the need for the Navy to more effectively manage DLRs. However, these studies did not address the specific issue of how to forecast DLRs workload at ASO.

Forecasted and actual data was collected by visiting ASO. Two visits were made to gather information concerning the policies and procedures used by ASO in DLR's workloading.

Two Naval Postgraduate School theses covering DLRs were also reviewed to gain a better understanding of the repairables cycle and to identify possible ways for forecasting of the DLRs workload.

D. CHAPTER OUTLINE

Chapter II gives a background about ASO's mission and its organizational structure.

Chapter III presents a description of the demand forecasting procedures at ASO. A detailed explanation of each segment of the ASO DLRs workload forecasting process is given to provide the reader with an understanding of complexities involved. This begins with the establishment of the need for repair, determination of quantity location and ending with the return of a completed repaired carcass to the supply system in a ready for issue (RFI) condition.

Chapter IV identifies problems that have contributed to errors in the forecasting of DLR's workloads and analyzes the data collected from ASO and the Navy Aviation Depot Operations Center.

Chapter V is an executive summary of the problems and offers recommendations based on the analysis of Chapter IV.

II. CURRENT MISSION AND ORGANIZATIONAL STRUCTURE IN ASO.

A. MISSION

ASO is responsible worldwide for the procurement, inventory control, and distribution of Navy and Marine Corps aviation spare parts, systems, and related equipment. The "ASO Strategic Plan" [Ref. 1, pg. 6] describes ASO's mission: "to plan, develop, employ, and control systems which provide worldwide material support to Naval aviation. This includes proactive use of integrated logistics data to identify and establish the most effective support options, and creative leadership in the employment of new technologies and decision tools to obtain readiness and sustainability for military aviation in peacetime and wartime". On the other hand ASO's mission can be summarized as follows.

1. To buy spare parts for Navy and Marine Corps aircraft.
2. Determine requirements.
3. Procure and allocate.

About 5000 aircraft including every type of Navy and Marine Corp aircraft, helicopters, and trainers are supported by ASO. Spare parts are managed by inventory managers. They analyze demand, receive the requisitions from fleet, and establish repair requirements [Ref. 2].

B. ORGANIZATION

As it is seen in the Figure 2-1, ASO reports to both the Naval Air System Command and the Naval Supply Systems Command. The Naval Air Systems Command provides "program control" including:

1. Technical direction
2. Logistics planning
3. Maintenance policy

Command authority comes from Naval Supply System Command. This authority includes:

1. Functional direction
2. System planning
3. Supply policy

As seen in Figure 2-2 and Figure 2-3, there are five directorates and two offices in ASO. Under the "Operations Directorates," note that Weapon Management (WM) Division is specifically responsible for the management of items within certain weapon systems. Each of these branches is organized around the specific aircraft's Original Equipment Manufacturer (OEM). Main responsibilities of these branches were described by Tom Sayen, an Inventory Manager (IM) at ASO, as below [Ref. 2]:

1. Keep readiness of aircraft high.
2. Budget for spare parts for future years.

Figure 2-1:The ASO in the Navy organization (Extracted from ASO briefing entitled "Navy Brickyard")

Figure 2-2: ASO organization (Adopted from "Navy Brickyard")

Figure 2-3:Detailed ASO organization (Extracted from "ASO Structural and Staffing Directory, Sept. 1988)

3. Support new systems as they come along DOD says have to going to support helicopter or aircraft for a specific year.

4. Provide part support for new helicopter and aircraft systems as they come in to the service, develop near term procurements requirement and establish longer term inventory levels.

5. Make all procurements.

C. SIZE AND SCOPE

The ASO compound is the largest employer in Northeast Philadelphia. It is a very big and complex business. There are seven commands which employ a total of more than 6500 employees. The total payroll is about $200 M. [Ref. 3]

ASO alone employs approximately 2000 employees. A major function of ASO is Inventory Management of Aviation Material. This includes analyzing demand, receiving the requisitions from the fleet, positioning and buying materials through the contracting department to support aircraft availability.

ASO's detailed organizational structure is seen in Figure 2-3. It is obvious that the most important part of the organization is the "Operations Directorate." This department is supported by four other directorates plus two main offices, the "Command Support Office", and the "Consolidated Civilian Personnel Office".

On the other hand, the main responsibility of ASO is to manage aviation material. The capacity is measured in both item and dollar values: 252,257 items and $16.7 Billion in 1988 [Ref. 3].

See Figure 2-4 for detailed information about the comparison of the repairables and consumables.

Figure 2-4: ASO Inventory (Extracted from "Navy Brickyard as of 1989")

III. RELATIONSHIP BETWEEN ASO FORECASTING ACTIVITIES AND DEPOT LEVEL REPAIRABLES REPAIR WORKLOAD

A. REPAIRABLES AND ITS IMPORTANCE

An item is classified as a repairable rather than a consumable item, if it is:

1. Less expensive to repair than to purchase a replacement,
2. Faster to repair than to purchase or,
3. No longer available from commercial industry and can be repaired [Ref 4, p. 1-1].

This is a general definition of a repairable but greater details will be furnished in the discussion of the assignment of the Source, Maintenance and Recoverability codes.

Repairables management is important because a change has occurred in recent years in the type of material managed by Navy Inventory Control Points (ICP). As weapon systems became more sophisticated, the equipment components and related parts necessary to sustain them also became complex and specialized. Defense systems are now being constructed in modules that are subsystems of the total. If a part fails, the entire module that contains this part is removed and replaced, because defective modules are expensive and normally entail a long lead time to procure. They must be repaired and returned quickly to the shelves of the supply system if the fleet is to be maintained at its desired level of readiness [Ref. 4, p. 1-1].

The Aviation Supply Office (ASO) is responsible for about 73,155 aircraft repairables [Ref. 3, p. 26] with an approximate annual repair cost of $901 million [Ref. 3, p. 15]. Expenditures of this magnitude call for a high level of attention by the Inventory Managers and responsible staff personnel of the ICP's. This attention is required in order to effectively control the material movement and the item repair [Ref. 4, p. 1-2].

At ASO, the inventory management of aviation repairables is assigned to the Weapon Management (WM) and Weapon Control (WP) Divisions. These two divisions are in the Operations Directorate (OP). WM is responsible for the material support of aircraft to maintain maximum readiness, availability and maintain accountability. WP is responsible for developing and implementing policy to assist WM in the management of the different weapon systems. The term "Inventory Manager" as used in this thesis encompasses both the Inventory Management Specialist (IMS) in WM and the Logistics Management Specialist (LMS) in WP.

The Repairables Management Branch is under the WP division in the Operations Directorate. It is divided into three areas of responsibility [Ref. 4, p. 1-3, 1-4]:

1. Requirements Determination

Participate in the development, revision and implementation of rework-program plans, methods and procedures. Assist in the development of rework and modification budget requirements and estimates. Assist in the development and implementation of automated programs for repairable item rework management.

Review proposals for commercial rework actions. Assist in the preparation of Depot Maintenance Interservice Support Agreements (DMISAs).

2. Weapon System Coordination

Perform liaison monitoring functions relative to rework production requirements and progress for specific weapons. Assure that production requirements are being or will be completed on schedule by Navy, interservice, or contractor maintenance facilities. Participate in the transition from commercial to Navy rework capabilities for designated weapon systems. Monitor the development of Navy rework capabilities.

3. Rework Program Support

Develop and implement programs insuring the availability of industrial capacity to support requirements projection. Develop rework program budget requirements and recommend fund distribution actions. Assist in the determination of rework facilities for specific or planned rework requirements. Coordinate the flow of unserviceable assets to rework activities to assure effective support of induction schedules.

B. LEVEL OF REPAIR ANALYSIS (LORA)

The LORA is an analytical technique which uses both economic and noneconomic evaluations to establish whether the item is going to be repaired or not by asking two questions; If repaired, which maintenance level (organizational, intermediate, or depot level) is responsible? Or should the item be discarded?

LORAs are an important part of the Integrated Logistic Support (ILS). The flowchart for one type of LORA analysis is shown in Figure 3-1.

The purpose of a LORA is to determine the least costly repair or discard alternative for performing maintenance and to influence the design of equipment accordingly [Ref. 5, p. III-7].

In addition to deciding whether an item should be considered as a Repairable, a determination is made about the level of repair at which this repair will occur. This decision, like the decision to classify an item as repairable, is made on the basis of the maintenance plan of the applicable Hardware Systems Command (HSC) or its designated agent. The Level of Repair is coded in the UICP Master Data File DEN DO13B, the Repair Maintenance Code, an element of the SM&R Code.

The maintenance levels are defined in below [Ref. 4, p. 1-12]:

1. Organizational Level

The lowest level, where the simplest repair will take place, is the organizational level. An organizational level repairable item is one that can be repaired where it is used; i.e., in a squadron afloat or ashore.

2. Intermediate Level

The second level of repair is the intermediate level. Intermediate level repairable items managed by ASO are repaired by the carrier's Aviation Intermediate Maintenance Department (AIMD) or sent to a shore Intermediate Maintenance Activity (SIMA).

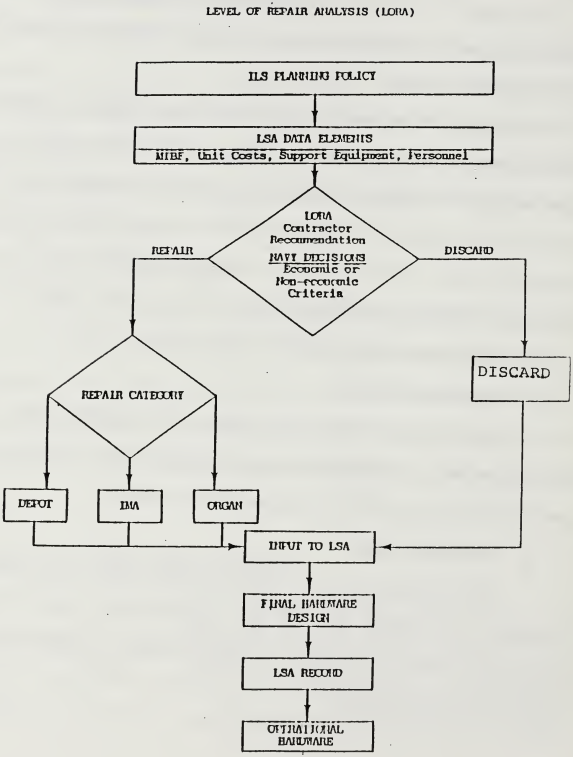


Figure 3-1: Level of Repair Analysis (Extracted from Ref.5)

3. Depot Level

The third and highest level of repair is the depot level. A depot level repairable item must be sent to a Navy or Commercial Designated Overhaul Point (DOP) when the organizational or IMA level cannot do or complete the repair. Navy DOPs, such as Shipyards or Industrial Naval Air Stations (INASs), are often referred to as "organic depots" that is, in-house activities.

This thesis focuses on the workload forecasting for "organic depots." Note that these organic depots, also known as Navy Aviation Depots (NADEPs), are not controlled by ASO. Instead, they come under the Navy Aviation Systems Command (NAVAIR).

The repair related costs that must be considered for a depot level repairable includes many variables, such as:

1. Packaging the item for return to the supply system after repair.
2. Shipping cost,
3. Receiving cost,
4. Screening, and entering item into the stock point before going to the NADEP,
5. Storage cost,
6. The cost of issuing the repairable from stock to the repair area,
7. The cost of repair site activation,
8. The capital investment and support costs at the repair activity for tooling and test equipment,
9. The cost of hiring and training maintenance personnel,

10. The cost of acquiring technical documentation,

11. Miscellaneous management costs incurred at all levels.

C. THE DEPOT LEVEL REPAIR CYCLE

The Depot Level Repair Cycle is divided into four phases. Figure 3-2 shows the general flow of material through the repair cycle. Figure 3-3 illustrates how the work is done.

Every segment of the Depot Level Repair Cycle is described in Ref. 4 [pg. 1-28,29,30] as below.

1. Exchange Process

The total repair process can be thought of as a circular system where the unserviceable unit enters in "F" condition and through system recommendations (made by the BO8 operation that compares requirements and assets and/or Inventory Manager decisions), is repaired and returned to stock in "A" condition to be reissued. Figure 3-2 indicates the general flow of material around this circuit managed by ASO. This diagram shows the repair cycle beginning when the unserviceable unit is turned in. The not ready for issue (NRFI) piece of equipment, referred to as a carcass, is turned is requisitioned. This section of the diagram is termed the "Exchange Process".

2. Retrograde and Storage

The next section of the repair cycle is called "Retrograde Processing". This term refers to the section of the repair cycle beginning when the Maintenance Action Form (MAF), indicating that the item is beyond the capability of

Figure 3-2: Repair Cycle (Extracted from Ref.7)

Figure 3-3:Depot Repair Cycle (Extracted from Ref.7)

organizational or intermediate maintenance, is prepared by the ship or squadron, and ending when the material is received at a DOP or Collection Point in "D", "E" or "F" condition. The material will be held until it is needed. See Figure 3-4 to understand the retrograde cycle.

3. Repair

Depending on the asset status of the item, the carcass can be scheduled for repair right away or it can be held at a collection Point/Industrial Naval Air Station (INAS) for repair at a future date. When a requirement is generated for a unit in "D", "E", or "F" condition, the carcass enters the "Repair Segment" at either a commercially operated repair center or a Naval Repair Facility. The objectives of both the Navy (Organic) and Commercial (Nonorganic) DOPs are the same but the record keeping and transaction item reporting (TIR) that result are somewhat different for these two types of facilities, as will be discussed later. Figure 3-4 shows both retrograde and repair cycle.

4. Return to RFI

The final segment of the repair cycle is the "Return to RFI" portion where the unit is repaired and becomes available for issue to satisfy RFI requirements. In the event an item is urgently needed, it can be diverted as it comes off the repair line and sent directly to an end user rather than being processed into storage.

Notice that the ICP personnel responsible for repair are located in the center of the repair cycle. This is because the decisions made by these personnel based on the information available to them will determine the events that take place during the repair cycle.

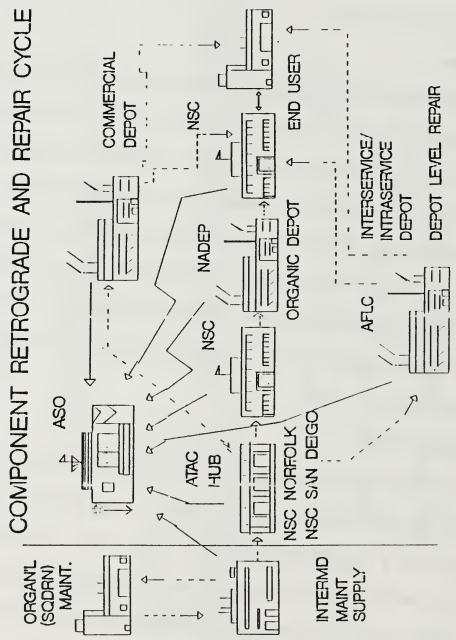


Figure 3-4: Component Retrograde and Repair Cycle (Extracted from "Navy Brickyard")

D. UNIFORM INVENTORY CONTROL PROGRAM (UICP)

Ref. 6 describes the UICP below:

The series of computer files, programs and forms used by the Inventory Control Point (ICP) item managers in the management of items falls under the Automatic Data Process (ADP) umbrella known as UICP. It is used at all Naval Supply System Command (NAVSUP) ICPs for managing wholesale supply system inventories.

The UICP covers every major supply management function performed by the ICPs. Fleet Material Support Office (FMSO) under the direction of NAVSUP is responsible for the system design, ADP analysis, programming and documentation of UICP. In this section I will examine major UICP files, programs and forms associated with the inventory management function and how they are used.

The ICP material is broken into groups identified by cognizance symbols, commonly called cogs. Cogs are two position codes that are used for internal Navy purposes to identify the method of wholesale funding, the applicable ICP exercising supply management and to some degree the type of material. For example, 1R cog represents aviation consumable and field level repairable material; 2R, ASO aviation depot level repairable material; etc. The odd cogs represent Navy Stock Fund (NSF) financing, while the even cogs are appropriated funds financed. Approximately 98% of the items at SPCC are NSF financed, while only 72% at ASO.

The cognizance symbol breakdown is important to UICP for several reasons. First, parameter values set by the ICP to determine inventory requirements levels can be varied by cog. Second, budgets are generally built by cognizance symbols or combinations of cogs, so UICP generates budget formulation data by cog. Third, numerous statistical reports are broken by cog to satisfy management interest. UICP has a 4-digit capability. The first two digits of the 4-digit cog are the items cognizance symbol described above, while the second two digits are alpha numeric symbols assigned at the discretion of the ICP.

In addition, UICP uses a breakdown of the material into groupings called Marks. The mark assignments are made by UICP in order to select appropriate forecasting and inventory levels computation techniques for repairable and consumable items. There are five Mark categories, and all five are applicable to all Navy managed wholesale cogs.

E. UICP FILES USED IN REQUIREMENTS DETERMINATION

There are five files used by the UICP described and seen in Figure 3-5.

1. Master Data File (MDF)

The MDF contains data relating to all ICP managed, stocked items, and to certain HSC items where the HSC simply uses the ICP MDF as storage file for data.

This file contains information about the following characteristics: Asset position, requirements, observation of demand, carcass returns, lead times, and repair turnaround times (RTAT) as well as forecasts (averages) for each item in the UICP system. [Ref. 4, p. c-6]

2. Repairables Management File (RMF)

The RMF is a relatively new file designed to assist the management of Depot Level Repairables (DLRs) items. This file contains many data elements representing item characteristics and data elements which were formerly in the MDF.

An entry in this file is established for each DLR item. For the purpose of requirements determination, we are interested in only those elements associated with systems inventory levels and procurement/repair determination, i.e., those elements used to describe organic and commercial repair performance such as inductions, completions, surveys, times, etc. The RMF is an on-line file whose primary entry key is the NIIN [Ref. 6, p. 3-12].

3. Planned Program Requirements (PPR) File

The PPR file contains an entry for each NIIN that has one or more planned requirements or reservations established.

Planned Requirements include any known or anticipated, funded or unfunded project or program related requirement which cannot be predicted within the UICP Cyclic Levels Forecasting techniques including special protection levels of stock [Ref. 4, p. c-7].

4. Due-in/Due-out File (DDF)

The DDF contains an item entry for each outstanding supply action affecting assets in the wholesale systems. These outstanding supply actions are identified by document identifier codes (DIC) and include requisition referrals to a stock point (DIC A4), supply directives to move materials from a TIR stock point

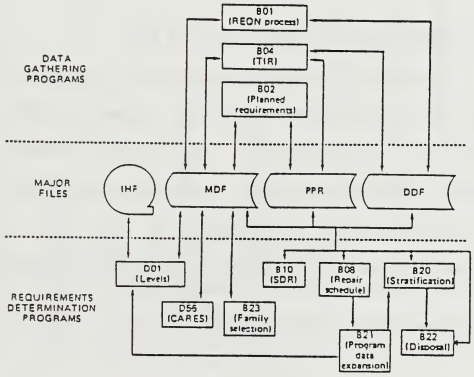


Figure 3-5: UICP Files (Extracted from Ref.6)

to a non-TIR activity (DIC A2), procurement (DIC DDS), movement of material into and out of the repair process (DIC BS1) and deleted through several UICP applications, including the TIR application B04. This file is random access keyed to the NIIN [Ref. 6, p. 3-14].

5. Inventory History File (IHF)

The IHF is a tape file, unlike the previously mentioned files. This file is a historical record for each item of the past eight quarterly and five annual observations of system and activity inventory data, such as recurring demands, carcass returns, assets, backorders, lead times and turnaround times. The data elements in this file are updated each quarter during the running of the UICP Cyclic Levels and Forecasting (D01) application. The primary entry keys are NIIN and Family/Group Code [Ref. 6, p. 3-14].

F. CURRENT REPAIR FORECASTING AT ASO

To be able to forecast repair requirements, it is necessary that we compare the total number of requirements against the total assets available to meet those requirements as seen in Figure 3-6. Assets are; RFI /On Hand, Due In/On Procurement, and Due In/On Repair. This is done in several steps:

1. Determining requirements of system.
2. Reviewing requirements against available asset (RFI on hand, asset in repair cycle, and assets in the procurement pipeline).
3. Recomputing the repair workload.

Figure 3-6: Repair Requirements Determination Steps (extracted from Briefing Notes entitled "Repair Requirement Determination")

1. Determining Requirements

Requirements are determined based upon the carcass returns as seen in Figure 3-7 using three ranges for computation:

a. Long Range Requirement Determination (2-5 Years)

Long Range Requirements are determined on a 2 to 5 year basis depending on the range of requirements. "B08 5 year forecasts" are produced in conjunction with the eight quarter forecast annually. This computation provides line item requirements forecasts in quarterly increments.

b. Mid-Range Requirement Determination (1 Year/4 quarter)

This computation is performed semi-annually to produce 1 year of requirements in quarterly increments.

c. Short Range Requirements Determination

This computation is done by UICP program B08 for weekly and quarterly requirments. The B08 program is run semiannually to obtain requirements forecasts the next two quarters.

2. Classification of Repair Requirements

Repair requirements for repairable aviation components are managed under the programs described in the following paragraphs:

a. Closed Loop Aeronautical Management Program (CLAMP)

CLAMP is a program designed to provide intensified management

CARCASS RETURN / ATTRITION FORECAST

DEPOT SURVIVAL (REPAIR SURVIVAL RATE) = DEPOT REWORKS (96) / DEPOT REWORKS + DEPOT SURVEYS (96) (4) = 96%

SYSTEM RECOVERY RATE (WEAROUT RATE) = DEPOT REWORKS (96) / DEPOT REWORKS + DEPOT SURVEYS + IMA SURVEYS (96) (4) (1) = 95%

CARCASS RETURN RATE = SYSTEM RECOVERY RATE (95%) / DEPOT SURVIVAL RATE (96%) = 99%

CARCASS RETURN FORECAST = DEMAND X CARCASS RETURN RATE / FORECAST (200) (99%) = 198

REGENERATION FORECAST = DEMAND X CARCASS RETURN RATE X DEPOT SURVIVAL RATE / FORECAST (200) (99%) (96%) = 190

ATTRITION FORECAST = DEMAND X [1 - SYSTEM RECOVERY RATE] / FORECAST [95%] / 200

POTENTIAL PROBLEMS FIELD LOSSES/UNREPORTED SURVEYS NOT FORECAST AS ATTRITION/ LOSSES IN TRANSIT/DEMAND RECORDING PROBLEMS

Figure 3-7: Carcass Return Forecast (Extracted from the briefing notes entitled "Repair Requirement Determination")

for selected, critical ASO managed repairables. The two prime futures of this system are discipline and accounting, exercised within all levels of the aviation maintenance and supply system [Ref. 4, p. 3-40].

The CLAMP selection criteria are described in Ref. 5 as below:

1. The item must be part of a designated critical or front line weapon system.
2. The item must be an ASO managed depot level repairable.
3. Procurement cost of the item must exceed $10,000 (unit price) or annual repair cost must exceed $100,000.
4. The item must have a high NMSCS/PMCS rate.

b. HI-Burner

This is an ASO unique repairables management program for these 2R, 8R, and 4Z Cog families that have an annual rework requirement of $80,000 or have a quarterly demand for 25 or more units. In addition, chronic NORs items which do not fit the above criteria may be included in Hi-Burner program.

The program's basic intent is to match the output of the repair process to the requirement rather than use the repair process to create shelf stock.

Hi-Burner levels the repair requirement so that the Naval Aviation Depots (NAVDEPs) are provided with a stable requirement and future forecast. This helps the NAVDEPs to minimize peaks and valleys in production planning and effectively utilize their capabilities and trade skills.

Items are selected for the Hi-Burner program by the inventory manager based on the latest Hi-Dollar stratification and/or quarterly demand. For these items, the latest Consolidated Stock Status Report (CSSR) pages and Cyclic

Data Sheets are analyzed. Computations involving asset disappearance are prepared along with other data such as carcass regeneration and quarterly demand. This information is formatted in accordance with an ASO/WLR instruction.

The items are reviewed by WLR and SC/WL reviewers. The requirements are sent to the NARFs for review prior to a semi-annual workload conference. At the conference, requirements are negotiated and become the NARF's production requirement for the quarter [Ref. 4, p. 3-41, 3-42].

c. B08 Cyclic Repairables Management

B08 is a program which computes repair requirements for aviation depot repairable items using a computerized set of equations and decision rules. This computation is applied to those aviation DLRs not in the CLAMP or HI-BURNER program. B08 produces repair recommendations for Navy DOPs, referral order recommendations for items to be repaired commercially or at non-TIR activities, and redistribution recommendations when a DOP needs carcasses that are located at another DOP or supply activity. As part of the UICP system at ASO, B08 computes the total system shortfall which is provided to the repair activity in the form of production and induction requirements. B08 also computes system repair requirements and transmits those requirements to DOPs each week [Ref. 5, p. XI-2].

B08 repair requirements are divided into four Urgency of Need Levels as described in Ref.4 [p. 3-8,3-9]:

(1) Level One

This level represents the most critically needed quantity.

(2) Level Two

This level represents the second most critically needed quantity.

(3) Level Three

This is the next most critical repair quantity.

(4) Level Four

This is the lowest priority repair quantity.

See Figure 3-8 for more detailed information about the B08 Level Computations.

Additionally, B08 runs the Rework in Warranty (RIW) programs and 1R Cog Repair Programs. RIW program was established for any specific aircraft systems that are experiencing technical or design instability and increased repair costs. A selected number of the repairables from the system population are placed into the RIW program and operations data are recorded by the manufacturer's serial number. 1R Cog Program, is managed by ASO in coordination with the Naval Aviation Logistics Command (NALC). Normally 1R Cog consumables are not repaired at the depot level, but depot repair may be required in exceptional situations [Ref. 5, p. XI-2]. These two activities are not going to be discussed in this thesis.

3. Repair Workload Forecasting

Forecasted demand based on the carcass returns (or determined requirements) is automatically converted to workload at ASO.

B08 LEVELS COMPUTATION

LEVEL ONE

```
  Backorders
     Priority One
     NHCS/PHCS
     Special Approved Projects
- Production Requirement (System RFI Deficit)
x DOF Percent Support Factor (FSF: DEN F029)
= DOF Production Requirement
  Survival Rate (F009)
- DOF in Process (Condition Code H)
= DOF Unconstrained Induction Requirement
    Constrained to following Elements:
       Capability (F016A/B)
       Not-Ready-For-Issue (NRFI) in condition codes D, E, and F at DSF
       DOF Capacity (B095)
= DOF Induction Requirement
```

LEVEL TWO

```
  Backorders
     End use
     Project Code 705
     Non Reporters' Fund Code 26 (OSI deficiencies pre 1 April 86)
+ Funded Reservations continually due other than purpose code L and W and
  Mobilization (Project Code F__)
- RFI (Less D/O) Condition codes A/B/C - All purpose codes except Codes
  L, W and T
= Production Requirement (System RFI Deficit)
x DOF FSF
= DOF Production requirement
  Survival Rate
- Balance in-process from level one
= DOF unconstrained induction requirement
      Constrained to following elements
         Capability
         Balance NRFI from Level one
         Balance capacity from Level one
= DOF Induction Requirement
```

LEVEL THREE

```
  Reporters' Fund Code 26 Backorders
+ Funded reservations due during RIAI (B012E x 91 days plus current date)
+ Mobilization requirements
    Funded reservations with Project Code F __
    Acquisition War Reserve (DEN B028C)
```

Figure 3-8: B08 Level Computation (Extracted from ASOINST 4000.30B)

```
+ Demand during RTAT (DEN B023H)
- Balance assets from level two
- DDE(except purpose codes L and W), FTR Documents, and contract dues schedu
  for delivery during RTAT
= Production Requirement (System RFI deficit)
x DOP PSF
= DOP Production requirement
  Survival Rate
- Balance in-process from level two
= DOP unconstrained induction requirement
   Constrained to following elements:
      Capability
      Balance NRFI from level two
      Balance capacity from level two
= DOP induction requirement
```

LEVEL FOUR

```
    Funded reservations due during Repair Objective (RO) (RTAT plus variable
    number of days predicated by Budget Execution Plan)

        ERQ (DEN B021A) plus safety level (DEN B019B - B023H)
+ MAX            or
       RO demand
- Balance assets and due-in from level three
- Contract dues scheduled for delivery during Repair Objective
= Production requirement (System RFI Deficit)
x DOP PSF
= DOP Production Requirement
  Survival Rate
- Balance in-process from level three
= DOP unconstrained induction requirement
    Constrained to following elements:
      Capability
      Balance NRFI from level three
      Balance capacity from level three
= DOP Induction Requirement
```

Figure 3-8: B08 Level Computation (Continued)

The BO8 operation prepares a "DOP eight quarter workload forecast" that is forwarded to the DOPs. The same program also generates a five year rework forecast for input to A/O B21 Program Data Expansion. This five year forecast is used in forecasting of program-related piece part requirements and repairable subcomponents.

The five year forecast is developed by determining a gross quarterly RFI requirement, offset by RFI on hand and due in. The gross repair requirement is applied to available carcasses to arrive at a net repair requirement. The quarterly demand forecast is determined by the entry in DEN BO74. Planned requirements are assigned to the quarter when they are due, unless they are currently due in, which case they are assigned to the first quarter. Backorders and Acquisition War Reserve are also added to the first quarter's requirement.

On-Hand RFI are considered here to mean assets with Condition Codes A, B, C, D, M. This quantity is reduced by the amount of Due-Out RFI and is considered available for the first quarter. Due-In RFI material is assigned to the quarter in which it is due.

RFI assets are subtracted from the RFI requirements to obtain the gross repair requirement for each quarter. The detailed information about this computation is shown in Figure 3-4. If assets are greater than requirements in any given quarter, the net repair requirement is set to zero and the excess assets are carried to the next quarter.

To determine what portion of the gross repair requirement can be repaired, carcass availability must be determined. The first element in this forecast

is the RFI Regenerations, using program values expected for each quarter. Any Due-In NRFI is factored by the Repair Survival Rate (RSR) and added to the availability in the quarter it is due. On-Hand NRFI is reduced by the Due-Out NRFI. The result is multiplied by the RSR and then added to the first quarter's availability.

These forecasts can then be used to generate a Rework Forecast. The Rework Forecast will be equal to the net repair requirement unless the net repair requirement exceeds the carcass availability. In this case, the Rework Forecast is set to the carcass availability. Any excess carcasses in one quarter are carried over to the next quarter.

UICP automated rates are not the optimum tool for workload forecasting. These rates are based on total demand, not on just carcass generating demand and wearout/survival rates (which tend to be conservative) [Ref. 7, p. 4].

a. Organic DOP Workload Forecasting

DOP Workload is forecasted semiannually. After the IM has prepared the information of the type shown in Figure 3-6, the level schedule program is run, and the results are discussed during the workload conference which is held one month before the real schedule has to be started. The conference sets a firm minimum quarterly production schedule for each depot's level-scheduled program. The net requirement found above is used in determining a DOP workload forecast. The forecast is computed for the entire family and cites the NIIN of the family head. Individual family members within a family do not receive a DOP

workload forecast. Each reporting DOP will be assigned a "fair share" of the system net requirement over the next eight quarters by application of the percent support factor (F029) [Ref. 4, p. 4-10].

The DOP workload forecast will be constrained to NRFI asset availability as shown below:

DOP Asset Availability = (Carcasses On Hand * RSR) + (Sys. RFI Regeneration * DOP Sup. Fac.)

If a DOP has insufficient assets for a quarter, its workload forecast is set equal to the available assets and the unsatisfied requirement is assigned to the closest DOP with sufficient excess assets.

A listing will be made in family/NIIN sequence to report the DLRs to each Navy DOP. This listing will include the eight quarter repair forecasts, Repairable Identification Code (RIC) of the DOP, Family Group or Item Identification Code, replacement price, unit repair cost, and LRC of the Inventory Manager.

b. Commercial DOPs

Commercial repair requirements at ASO are manually determined using procedures established at that ICP. Annual schedules are administered by ASO, PCO and DCAS/NAVPRO ACO. A major difference between Navy and

Commercial repair is that Commercial Repair provides less TIR information to the UICP system.

Items under a current commercial overhaul contract are usually shipped to the contractor in accordance with the Master Repairable Item List (MRIL) direction. Low value/low volume contract items may not be listed in the MRIL and carcass positioning at the commercial DOP is done through manual redistribution actions. In some cases, where organic repair capacity is insufficient, an item is augmented with a commercial contract. Augmented support contracts have carcasses manually directed to the commercial contractor by the Inventory Manager. Contractors initiate repair action in accordance with the contract provisions.

The BO8 workload forecasting procedure discussed above (that produced a listing of workload forecasts for Navy DOPs) also produces a listing of the repair requirement forecasts for those items to be repaired at Commercial or Navy Nonreporting DOPs or for items with no DOP assigned.

c. Interservice Repair

Workload forecasting of Interservice Repair is a manual effort at ICP, although BO8 will provide a Workload Forecast for Navy items that are to be repaired by other services under Depot Maintenance Interservice Support Agreements (DMISAs) and Wholesale Interservice Supply Support Agreements (WISSAs).

DMISA items are identified by the presence of "QDMISA" in DEN FO16. The Inventory Managers are required to provide requirements justification

to the Weapon Policy Repairable (WPR) branch. DMISA managers negotiate firm production schedules with the repair agent at quarterly or semiannual conferences. The requirements are then negotiated with the other service. These negotiations include the following considerations:

1. Carcass availability,
2. Past performance of the item (survey rate, turn around time),
3. Piece part availability, and
4. Capacity of facility (number of test benchs and trained maintanence people)

WISSAs are negotiated by ASO with other Military Services to provide support on specific weapon systems. The agreements basically provide support under a credit/exchange procedure. The supporting activity provides complete support.

ASO's Organic, Interservice and Commercial activities regardless of either dollar value, unit numbers and NSNs cover more than 57 % of total activities as shown in Figure 3-9.

We are going to focus our study on aviation DLRs which are repaired by Navy organic DOPs.

(1) The Repair requirements Priority

Repair requirements are prioritized for repair at NADEPs each week in the following sequence:

1. B08 Level 1 requirements.

Figure 3-9: ASO Activities (extracted from Ref. 3)

2. CLAMP requirements (which will be treated as Level 1 requirements).

3. B08 Level 2 requirements.

4. HI-BURNER requirements (which will be treated as Level 2 requirements).

5. B08 Level 3 requirements.

6. B08 Level 4 requirements.

The procedures after computation of all repair requirements are described in Ref. 5 [p. XI-7] as shown below:

> For all aviation material except 6R Cog, ASO will transmit repair directives with the document identifier BSS as seen in the Figure 3-10 via AUTODIN to the NARFs and the Naval Avionics Center (NAC) in Indianapolis, Indiana before midnight each Friday. If the midnight deadline cannot be met, ASO will notify NALC and the repair activities by telephone or AUTODIN and give them the anticipated transmission time. If ASO is unable to transmit repair requirements or must abort a transmission, it will notify the NALC and repair activities to reuse the previous week's repair requirements. If a repair activity cannot process repair directives automatically, ASO will transmit Level 1 requirements via telephone on Monday.
> Four types of BSS repair directives are used to assign work to aviation depots:
>
> 1. Cyclic Repair Requirements generated by B08 (NWS),
>
> 2. Interim Repair Requirements (NWR)
>
> 3. CLAMP Requirements (NWC), and
>
> 4. HI-BURNER Requirements (NWH).
>
> Upon receipt of 2R, 8R, 4Z, 8N Cog BSS repair directives, each NARF will input the repair directives to the Weekly Induction Scheduling (WIS) program, which determines the repairable assets that will actually be inducted at the repair activity.

REPAIR REQUIREMENT TO DOP

D/I	DOP	NSN	COG	PEC IND QTY	TOTAL IND QTY	DOC TYPE	RANKING	FIC	PRODUCTION RQMT BY LEVEL 1	2	3	4	INDUCTION RQMT BY LEVEL 1	2	3	4	LRC
BSS	NOZ	9815002461357	7R		00008	NWS 3	98765	AAAA	001	005	005	002	000	000	006	002	1AA
BSS	NAZ	5930001252468	7R		A	NWS 5	99888	BB11	000	004	006	003	000	000	000	000	33B
BSS	NBZ	1095003578642	6K		C	NWS 5	99997	CCCA	000	000	002	001	000	000	000	000	3CC
BSS	NWZ	6610005734682	7R		M	NWS 5	97555	DEFA	005	009	015	005	000	000	000	000	5AA
BSS	NDZ	5831007538624	7R		00056	NWS 1	97872	EEE1	001	025	020	010	001	025	020	010	333
BSS	PZZ	2920108265321	6K		X	NWS 5	99947	FAA1	000	000	004	001	000	000	000	000	622
BSS	P14	4320006822153	7R	P	00006	NWS 2	96333	GAAA	000	001	003	002	000	001	003	002	444
BSS	P14	4320002683512	7R		00005	NWS 4	99444	GAAA	004	005	008	005	000	000	000	005	444

TOTAL IND QTY

A = DOP DOES NOT HAVE REPAIR CAPABILITY. NOT ON COMMERCIAL OVERHAUL CONTRACT.
C = NO NRFI AVAILABLE AT DOP
M = SUFFICIENT MATERIAL IN PROCESS TO SATISFY TOTAL INDUCTION RQMT
X = DOP NOT CAPABLE. ITEM IS ON COMMERCIAL OVERHAUL CONTRACT

PEC IND

P - A CODE TO INDICATE REGULAR REQUIREMENTS EXIST ON A FAMILY MEMBER. NARF WILL INDUCT THAT NSN ONLY. REQUIREMENT FOR BALANCE OF FAMILY IS REFLECTED UNDER HEAD OF FAMILY AND ANY MEMBER OF THE FAMILY CAN BE INDUCTED.

Figure 3-10: Repair directive to DOP (BSS)

IV. ANALYSIS OF ASO AVIATION DLR WORKLOAD FORECASTING ERRORS

A. GENERAL

Forecasting NRFI repair requirements is a critical responsibility of ASO and is done for each weapon system separately.

Accurate forecasting is a key repair efficiency factor because it helps minimize repair part inventories and improves allocation of technical labor. Both ASO and DOD save money in parts and labor by trying to closely match requirements to actual system needs. The two measures of forecasting accuracy are dollar costs and carcass flow. We will focus our analysis on carcass flow by comparing forecasted with actual requirements during the first, second, third and fourth quarters of fiscal year (FY) 1989, and the first and second quarters of FY 1990.

Inaccurate forecasting also means that ASO may run out of DLR or have excess aviation DLR repair funds. If ASO runs out of repair funds, then there is always the chance that aircraft readiness will be negatively affected.

We did three kinds of analysis on three workload conference masters and on actual DOP outputs for 84 to 96 randomly selected items:

1. We compared the differences between level schedules and actual schedules (negotiated during the workload conference) to see the accuracy of the level schedules.

2. We used the variance to mean ratio to measure the levelness of level schedules and actual schedules for the last five quarters which includes the

4th quarter of 1988 and the 1st, 2nd, 3rd and 4th quarters of 1989. Variance to mean ratios were also computed for the last 8 quarters of DOP outputs.

3. Actual RFI survey rates and misidentified (MID) rates were also computed for 96 items. See Appendix-A for more detail.

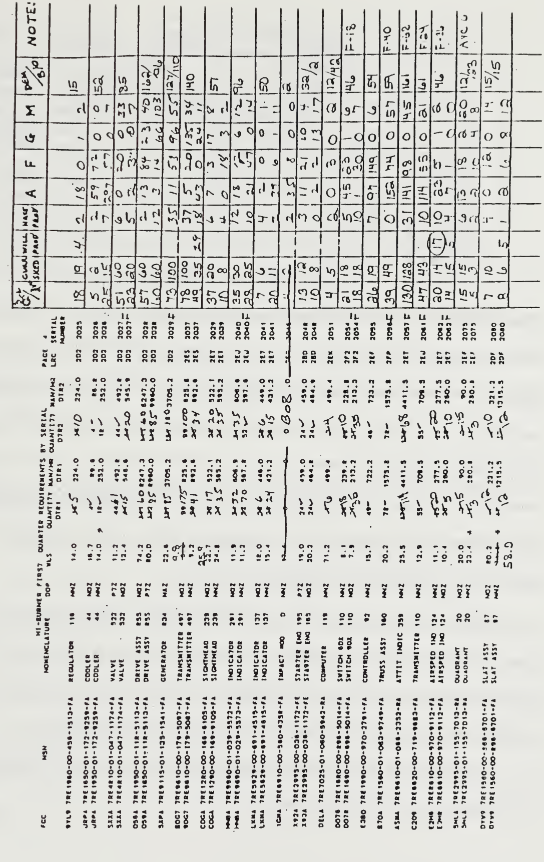
Additionally we compared the differences between ASO actual schedules and DOP RFI outputs.

B. ANALYSIS OF CONFERENCE MASTER SCHEDULES

First we will analyze three semi-annual "workload conference master schedules" to determine the number and magnitude of system forecasting errors by examining the increasing and decreasing items in the three consecutive semi-annual level schedules (LS). Each semi-annual schedule includes 1244, 1221 and 1270 total line items respectively.

Figure 4-1 is a sample Conference Master. The left side of this paper is produced by the ASO level schedule software running on the UICP computer system. The information on the right side comes from the DOPs to be able to compare with data at ASO. There are some changes (indicated in pencil) on the left side of the conference master. These are new repair quantities which were agreed to during the conference.

For the three workload conferences examined, 5-6% of the level schedule items experienced increases at the conference table. See Table 4-1. The average size of these increases was about 10 units. This figure was stable over the three conferences. See Table 4-2. About 11.3-15.35% of the level schedule items



HI-BURNER FIRST QUARTER REQUIREMENTS BY SERIAL — PAGE 4

FCC	NSN	NOMENCLATURE		DOP	VLS	QUANTITY DTR1	MAN/HR DTR1	QUANTITY DTR2	MAN/HR DTR2	LRC	SERIAL NUMBER	C/ST	CURR SKED	WILL PROD	HAVE PROD	A	F	G	M	DEM/BP	NOTE:
9YL9	7RE1960-00-456-1513-FA	REGULATOR	118	NMZ	14.0	x5	224.0	x10	224.0	202	2025	18	19	4	2	18	0	1	2	15	
JRPA	7RE1650-01-172-9259-FA	COOLER	44	NOZ	16.7	4✓	89.6	4	86.8	202	2026	5	2		2	59	72	0	0	52	
JRPA	7RE1950-01-172-9259-FA	COOLER	44	NMZ	14.0	12✓	252.0	12✓	252.0	202	2026	25	15		7	207	57	0	1		
SXXA	7RE4R10-01-047-1174-FA	VALVE	522	P7Z	11.2	44	492.8	44✓	492.8	202	2027	51	60		6	0	20	0	33	85	
SXXA	7RE4R10-01-047-1174-FA	VALVE	532	NOZ	12.4	x15	546.6	x20	545.9	202	2027F	23	20		5	2	3	0	7		
O59A	7RE1950-01-11R-5113-FA	DRIVE ASSY	855	NOZ	74.2	x60	8247.3	x60	8247.3	202	2028	57	60		2	13	84	23	40	162/96	
O59A	7RE1650-01-11R-5113-FA	DRIVE ASSY	855	P7Z	80.0	x85	8960.0	x85	8960.0	202	2028	60	60		12	3	14	66	103		
SXPA	7RE9115-01-135-1541-FA	GENERATOR	834	MAZ	22.6	x85	3705.2	x180	3705.2	202	2029F	73	100		35	11	53	96	55	127/110	
8OG7	7RE9610-00-179-5097-FA	TRANSMITTER	497	NOZ	9.9	99/175	825.6	99/100	825.6	2ES	2037	78	100		37	5	20	135	34	140	
9OG7	7RE9610-00-179-5087-FA	TRANSMITTER	497	NMZ	9.2	x41	892.6	x34	892.6	2ES	2037	49	35	29	18	43	0	24	11		
COGA	7RE1280-00-168-8105-FA	SIGHTHEAD	239	NOZ	25.9 / 23.7	x17	522.1	x20	522.1	2ET	2039	37	20		6	7	3	17	8	57	
COGA	7RE1290-00-169-9105-FA	SIGHTHEAD	239	NMZ	24.8	x35	585.2	x35	595.2	2ET	2039	10	8		4	0	18	3	2		
MNBA	7RE9980-01-039-5572-FA	INDICATOR	291	NOZ	11.9	x72	606.9	x35	606.6	2EJ	2040	35	30		12	18	7	6	12	96	
MNBA	7RE9690-01-029-5573-FA	INDICATOR	291	NMZ	11.2	x70	587.8	52✓	597.6	2EJ	2040F	28	25		10	21	47	0	14		
LKMA	7RE5929-00-691-4515-FA	INDICATOR	137	NOZ	18.0	x6	446.0	x6	449.0	2E7	2041	7	6		4	2	0	0	1	50	
LKMA	7RE5829-00-691-4615-FA	INDICATOR	137	NMZ	15.4	x24	421.2	x15	431.2	2E7	2041	20	11		2	75	6	1	11		
1GMA	7RE6910-00-560-4358-FA	IMPACT MOD	D	NMZ	[illegible]			0	808.0	[illegible]	[illegible]	11	2		2	35	8	0	0	12	
X92A	7RE2995-00-036-1172-FE	STARTER ENG	195	P7Z	19.0	24✓	459.0	24✓	459.0	28D	2048	13	12		3	11	21	10	4	32/2	
X93A	7RE2995-00-036-1172-FE	STARTER ENG	165	NOZ	20.2	24	464.8	24	464.9	28D	2048	10	8		0	2	2	13	17		
DELA	7RE7025-01-060-5942-RA	COMPUTER	119	NMZ	71.2	76	499.4	24	499.4	2EK	2051	4	5		2	0	3	0	2	12/42	
DO7B	7RE16R0-00-896-5014-FA	SWITCH BOX	110	NMZ	8.1	x18	239.8	x10	228.8	2F2	2054	21	18		5	45	23	1	6	46	F-18
DO7R	7RE1690-00-896-5014-FA	SWITCH BOX	110	NOZ	7.9	x36	213.2	x35	213.3	2F2	2054F	18	18		10	1	30	0	7		
E3BO	7RE1990-00-970-2791-FA	CONTROLLER	92	NMZ	15.7	49	722.2	46	723.2	2EF	2055	26	19		7	97	149	0	6	54	
87OA	7RE1560-01-063-9749-FA	TRUSS ASSY	160	NMZ	20.2	78	1575.8	78	1575.8	2FP	2056F	39	49		0	152	74	0	57	59	F-40
ASMA	7RE9610-01-066-2352-RA	ATTIT INDIC	359	NMZ	25.5	x114	4411.5	x68	4411.5	2ET	2057F	130	128		31	141	98	0	45	161	F-32
C209	7RE6620-00-719-9683-FA	TRANSMITTER	110	NMZ	12.9	55	709.5	55	709.5	2EJ	2061F	47	43		10	114	55	0	21	161	F-24
E2M6	7RE8610-00-970-9112-FA	AIRSPEED IND	124	NMZ	11.1	x20	277.5	x20	277.5	2E7	2062	20	14	17	10	23	5	1	2	46	F-26
E2MR	7RE6610-00-970-9112-FA	AIRSPEED IND	124	NOZ	10.4	x5	260.0	x10	260.0	2E7	2062F	14	15	5	4	7	1	0	0		
5MLA	7RE2995-01-155-7013-RA	QUADRANT	20	NOZ	20.0	x15	90.0	x15	90.0	2EF	2075	15	15		6	13	18	2	20	12/23	AYC 0
5MLA	7RE2995-01-155-7013-RA	QUADRANT	20	NMZ	23.4	x3	280.8	x3	230.8	2EF	2075	5	3		2	2	10	4	8		
DYV9	7RE1560-00-566-6701-FA	SLAT ASSY	87	NOZ	80.2	x12	221.2	x10	321.2	2DF	2080	7	10		4	0	12	0	14	15/15	
DYV9	7RE1560-00-896-6701-FA	SLAT ASSY	87	NMZ	58.0	x12	1215.5	x12	1315.5	2DF	2080	8	6	5	1	2	6	8	12		

Figure 4-1: Conference Master

TABLE 4-1: COMPARISON OF LEVEL SCHEDULE OUTPUT TO WORKLOAD CONFERENCE OUTPUT (INCREASES, DECREASES AND TOTAL CHANGES)

CONFERENCE MASTER	TOTAL ITEMS	INCREASES		DECREASE		TOTAL CHANGES	
		# OF ITEMS	% OF TOTAL ITEMS	# OF ITEMS	% OF TOTAL ITEMS	# OF ITEM	% OF TOTAL ITEMS
QTR 1/2 89	1244	62	4.98	191	15.35	253	20.33
QTR 3/4 89	1221	62	5.07	159	13.02	221	18.09
QTR 1/2 90	1270	77	6.06	144	11.33	221	17.40
TOTAL	3755	201	5.35	494	13.15	693	18.55

experienced decreases at the conference table. See Table 4-1. The average size of these decreases ranged from 11.7 to 14.75 units. See Table 4-3. Note that these figures were based on all the level schedule items in the three conference masters examined. This shows that, for a significant fraction of level schedule items, the level schedule software doesn't produce a workload forecast directly acceptable to the DOPs. However, the reader should know that the number of level schedule items experiencing change at the conference table has been gradually decreasing over the three workload conferences examined.

Table 4-1 shows that overall, the level schedule software produces workload forecasts that are changed at the conference table close to 20% of the time. Over time this percentage has become smaller. It was 20.33% for the QTR 1/2 89, it was 18.09% and 17.40 for the subsequent two semi-annual schedules.

These are the results which show the existence of some differences between ASO requirements and DOP capabilities.

TABLE 4-2: COMPARISON OF LEVEL SCHEDULE OUTPUT TO WORKLOAD CONFERENCE OUTPUT (SIZE OF INCREASES)

CONFERENCE MASTER	LINE ITEMS INCREASED		TOTAL FOR THE LINE ITEMS			
	# OF ITEMS INCREASED	AVERAGE SIZE OF INCREASE (IN UNITS)	LEVEL SCHEDULE OUTPUT	WORKLOAD CONFERENCE OUTPUT	DIFFERENCE	% INCREASE
QTR 1/2 89	62	10.61	335	993	658	196.4
QTR 3/4 89	62	10.79	809	1478	669	82.6
QTR 1/2 90	77	9.22	689	1399	710	103.0
TOTAL	201	10.134	1833	3870	2037	111.12

It is also important to determine whether the induction amount is going to be sufficient to meet the fleet requirements, because there are survey losses in depot. But after this situation, NRFI carcasses may not be available for requirement at the production line or depot. This is unpredictable but we have to assume a specific percentage of the units which will be survey losses.

C. VARIANCE TO MEAN RATIO (VTMR) ANALYSIS FOR THE SCHEDULES AND DOP OUTPUTS

1. VTMR Analysis for Level Schedules, Actual Schedules and DOP Outputs

To be able to measure the "levelness" of the level schedules, we computed VTMRs [Ref.9, p.156] for level schedules (the output of the level schedule program) and actual schedules separately. VTMR analysis was done for the 100 randomly selected DLRs shown in Appendix A. We computed a VTMR for each of the 100 DLRs. However, many of these DLRs are repaired at more than one DOP. For these latter DLRs, we computed a VTMR for each DOP that repaired the DLR.

TABLE 4-3: COMPARISON OF LEVEL SCHEDULE OUTPUT TO WORKLOAD CONFERENCE OUTPUT (SIZE OF DECREASES)

CONFERENCE MASTER	# OF LINE ITEMS DECREASED	AVERAGE SIZE OF DECREASE (IN UNITS)	LEVEL SCHEDULE	WORKLOAD CONFERENCE OUTPUT	% DECREASE
QTR 1/2 89	181	14.75	8100	2817	34.77
QTR 3/4 89	159	11.69	5546	1860	33.53
QTR 1/2 90	144	14.48	6582	2085	31.67
TOTAL	494	13.69	20228	6762	33.42

Note that the completely level schedule would have a VTMR of 0.00 while a VTMR value of 1.00 has as much "unlevelness" in it as an exponentially distributed random variable.

In Appendix A, column 20 (C20) and column 23 (C23) show us the VTMR for level schedules and actual schedules respectively. Figure 4-2 shows the statistical summary of the level schedule results. The mean of the VTMR values for the level schedule is 0.3427. On the other hand the maximum VTMR value is 2.4000, which represents a very non-level schedule. The first quartile of the distribution of VTMR values for the randomly selected DLRs was a fairly low, 0.0414.

Figure 4-3 shows us the VTMR values for the actual schedules. The mean is 0.5413 for these VTMR values which is bigger than the mean VTMR for the level schedules. This is evidence that the workload conference process is causing the actual schedule to become less level than the schedule produced by the level

```
MTB > DESCRIBE C5 (VTMR FOR AS)

                N       N*     MEAN   MEDIAN   TRMEAN    STDEV   SEMEAN
C5            149       5   0.3413   0.1955   0.3935   0.9653   0.0791

               MIN      MAX       Q1       Q3
C5          0.0065   7.0000   0.0787   0.4902


MTB > HISTOGRAM C5 (VTMR FOR AS)

Histogram of C5   N = 149   N* = 5
Each * represents 2 obs.

Midpoint   Count
     0.0      83  ****************************************
     0.5      41  ********************
     1.0       8  ****
     1.5       5  ***
     2.0       2  *
     2.5       0
     3.0       7  ****
     3.5       0
     4.0       1  *
     4.5       1  *
     5.0       0
     5.5       0
     6.0       0
     6.5       0
     7.0       1  *

MTB > end
MTB > noprint
```

FIGURE 4-2: VTMR analysis for AS

schedule process. The first quartile is 0.0787 for actual schedules for the 100 items.

2. VTMR analysis for DOP outputs

We wanted to measure the levelness of the DOP outputs by computing the VTMR values for the randomly selected DLRs that we used above. But we computed VTMRs only for 84 of 100 items, because we misunderstood some of the data that we got from NAVDAC. The VTMR values for these 84 DLRs are shown in Figure 4-4. These statistical results show us the levelness of the DOP outputs for the 1st, 2nd, 3rd and 4th quarters of 1988 and 1989.

```
 ROW     C1        C2        C3        C4        C5     C6     C7

   1     1   0.09941     3.714     4.24   0.30720      5      0
   2     2   0.21929    42.714   286.57   0.15707     36      0
   3     3   0.01391    61.000   738.67   0.19851      2      0
   4     4   0.07905    57.000   163.67   0.05037      0      0
 . . .

MTB > DESCIBE C2 (VTMR FOR LS)

               N      N*     MEAN   MEDIAN   TRMEAN    STDEV   SEMEAN
C2           146       8   0.3427   0.1320   0.2516   0.5800   0.0480

               MIN      MAX       Q1       Q3
C2          0.0009   2.4000   0.0414   0.3468

MTB > HIST C2 (VTMR FOR LS)

Histogram of C2   N = 146   N* = 8
Each * represents 2 obs.

Midpoint   Count
     0.0      58  ******************************
     0.2      44  ***********************
     0.4      20  **********
     0.6       7  ****
     0.8       2  *
     1.0       6  ***
     1.2       0
     1.4       0
     1.6       0
     1.8       0
     2.0       0
     2.2       0
     2.4       9  *****
```

FIGURE 4-3: VTMR analysis for LS

As seen in Figure 4-4 the mean of the VTMR values for the 84 aviation DLRs is 0.616, which is bigger than the mean VTMR values for AS and LS.

3. Analysis of differences

a. Differences between actual schedules and current schedules

As seen in Appendix C, we computed many differences between the actual schedule and current schedule reported by the DOP at the start of the workload conference. This computation was done only for the 2nd and 4th quarters of 1989 because we had no data for other quarters. The results of this computation are shown in the last two columns of Appendix A. There are some increasing and decreasing schedule amounts similar to those in the level schedules discussed in the previous section. These might be caused by:

1. Typist errors,

```
MTB > hist c13

Histogram of C13   N = 143   N* = 1
Each * represents 5 obs.

Midpoint   Count
       0     105  **********************
       1      22  ******
       2       7  **
       3       4  *
       4       3  *
       5       0
       6       0
       7       0
       8       2  *


MTB > describe c13

                N       N*     MEAN   MEDIAN   TRMEAN    STDEV   SEMEAN
C13           143        1    0.616    0.223    0.415    1.197    0.100

                MIN      MAX       Q1       Q3
C13           0.001    8.000    0.098    0.525

MTB > end
MTB > stop
**** Minitab Release 7.1 **** Minitab, Inc. ***
IBM VM/CMS, Storage available 116744
```

FIGURE 4-4: VTMR analysis for 84 aviation DLRs

2. Additional required changes after each conference,
3. Other unknown mistakes.

Keeping accurate records is a very important part of ASO's workload forecasting process because ASO is supposed to have correct recorded data. The more accurate this data is the more accurate future forecasts will be.

TABLE 4-4: MEAN SURVEY RATES FOR 84 AVIATION DLRs

TIME FRAME	DOP 1	DOP 2	DOP 3	DOP 5	DOP 6	DOP 7	DOP 8	OVERALL
85-87 YY	0.0299	0.0361	0.0333	0.0995	0.0148	0.0252	0.1020	0.0471
88-89 QTRs	0.0089	0.0294	0.0277	0.0830	0.0173	0.0323	NO REPAIR ACTIVITY	0.0409
85-89 OVERALL	0.0334	0.0518	0.0152	0.0479	0.0314	0.0254	0.1027	0.0373

b. Differences between actual schedules and DOP outputs.

We analyzed the five quarters of DOP outputs to be able to understand whether the results were the same as the actual schedule or not. The results of this analysis, shown in Appendix B are based on the 4th quarter of FY 1988 and the 1st, 2nd, 3rd and 4th quarters of FY 1989. See column numbers C17, C18, C19, C20 and C21 in Appendix B to see the many decreased and few increased repair quantities. The mean differences between scheduled and RFI output for each quarter were -2.291, 0.102, -1.73, -1.87, -2.27 for the 1st quarter of FY 1988 and the 1st, 2nd, 3rd, 4th quarters of FY 1989. That could mean that, either DOPs were not able to repair the NRFI carcasses in the schedule, or they were not provided enough carcasses.

4. Analysis of the survey rates and misidentification rates.

a. Analysis of survey rates.

The ratio of the surveyed items to the sum of RFI outputs and surveyed items at a DOP is defined as the survey rate. Survey rates were computed for each NIIN and each DOP for three different time frames: FY 85-87 (yearly data), FY 88-89 (quarterly data) and FY 85-89 (all data). The overall survey rates for all DOPs during the first two time frames were:

1. FY 85-87 (annual data): 0.0471
2. FY 88-89 (quarterly data): 0.0409

See Table 4-4. There is a decrease in DOP 1, DOP 2 and DOP 3 survey rates over time. There are increases in DOP 6, DOP 7 survey rates over time. We can say nothing about DOP 8 because of its lack of repair activity in the FY 85-87 time frame. In general there is improvement over time. The overall rate is 0.0373 for the FY 85-89 time frame.

We analyzed the survey rates for each NIIN and DOP by DOP as seen in Appendix E. The minimum survey rate was 0.0089 at DOP 1 in the FY 88-89 (quarters). The maximum survey rate was 0.1020 at DOP-8 in the FY 85-88 time frame. The overall survey rate was 0.0373 for all DOPs. See Figure 4-5 for more details.

TABLE 4-5: MEAN MISIDENTIFICATION RATES FOR 96 AVIATION DLR

TIME FRAME	DOP 1	DOP 2	DOP 3	DOP 5	DOP 6	DOP 7	DOP 8	OVERALL
85-87 (YY)	0.0165	0.0561	0.0192	0.0299	0.0173	0.0416	0.0000	0.029
88-89 (QTRS)	0.0430	0.0354	0.0351	0.0605	0.0146	0.0271	NO REPAIR ACTIVITY	0.029
85-89 OVERALL	0.0346	0.0478	0.0142	0.0353	0.0163	0.0355	0.0000	0.029

b. Analysis of the misidentification rates.

After analyzing the survey rates for DOP outputs we also analyzed the misidentification (MID) rates for 96 NIINs and for each DOP and for the same time frames that were used with the survey rates.

The smallest survey rate is 0.0142 for DOP-3 for FY 85-89 time frame. There is a decrease in DOP 2, DOP 6 and DOP 7 misidentified rates over time. There are increases in DOP 1, DOP 3 and DOP 5. We can say nothing about DOP 8 because of its lack of repair activity in the FY 85-87 time frame. In general there is not much improvement over time.

The reader should note that misidentification rates result from errors made at the supply center or DOP (and stores NRFI carcasses for the DOP).

V. SUMMARY AND RECOMMENDATIONS

A. SUMMARY

The ASO aviation DLRs workload forecasting is a key factor for US Navy management of DLRs. This management can have a significant impact on the readiness of aircraft. The more accurate the forecasting is for aviation DLRs, the higher the level of aircraft readiness will be.

This study was done because of a lack of repairables, NRFI carcasses and a lack of funding for the repair of repairables. We set out to understand whether the forecasting is sufficient or not for future requirements.

We focused our study on the DLRs workload scheduling process. We had enough data for the 4th quarter of FY88 and the 1st, 2nd, 3rd, 4th quarters of FY 89. We analyzed these workload schedules to see if the level schedule process was producing level schedules. We also analyzed the DOP outputs for each DOP and each NIIN to measure the "levelness" of these outputs. Finally, we compared the schedules with the DOP outputs for 84 randomly selected aviation DLRs that are currently scheduled using the level schedule process.

As a summary, we found significant changes on the workload master schedules. There were some differences between actual schedules (AS) and level schedules which generally effected levelness negatively.

B. FORECASTING ERRORS

During this thesis study, we analyzed actual data. After this analysis we found some significant differences between level schedule output and what comes out of the workload conference. The level schedule forecast ought to take into account what is likely to happen at the workload conference. In the analysis of the data we found there were:

1. Increases in the workload schedules: About 5% of the line items experienced increases at the workload conference. Overall the repair quantity increase was 111% increase over the original level schedule quantity.
2. Decreases in the workload schedules: About 13% of the level schedule items experienced decreases in repair production quantities at the workload conference. The average size of a decrease was nearly 14% units of DLR. This represents a 33% decrease over the original repair production quantity.
3. Unsmooth Variance to Mean Ratio for level schedules, actual schedules and DOP outputs.
4. Irregular survey rates and misidentified (MID) rates.

C. THE "UNLEVELNESS" OF THE LEVEL SCHEDULE PROGRAM

The Level Schedule Program was established originally to give the NADEPs a repair workload that was level from quarter to quarter. The reason for doing this was to make the NADEP production planning process easier, and reduce costs at the NADEPs. We found that the Level Schedule Program software used at ASO did produce schedules that were generally level (although there was substantial variability in "levelness" from item to item). What was most interesting was that we found that the workload conference introduced additional "unlevelness" into the workload schedules. The data did not reflect whether this introduced unlevelness

was the result of requests from NADEP representatives or from ASO representatives. Since the stated purpose of the Level Schedule Program is to produce more level repair schedules, we would expect that NADEP representatives would want to introduce more, not less, levelness via the workload conference.

Finally we observed some evidence that the RFI output from the NADEPs was even less level than either of the schedules discussed above. This is not surprising, as there are random variables that affect the repair process and cause irregular shortfalls or overages in final RFI output from the repair process.

D. RECOMMENDATIONS

1. Changing computer software for DLRs workload forecasting

ASO ought to change its level schedule forecasting software by taking into account the reasons for changes being made to level schedule production amounts at the workload conference so that possible improvements to the level schedule software can be made.

2. Future Research on Survey Rates

Recommendation that research be done to compare actual, observed survey rates against the estimated, implied survey rate (1 - survival rate) used in the level schedule program software to account for forecasted NADEP losses. This will help to determine if that portion of the level schedule software needs to be modified to more accurately reflect the actual NADEP survey losses.

3. Reducing SURVEY rates and MID rate

Old items should be discarded from the inventory. These items in inventory could cause a high survey rate if repair technology and equipment are not fit to repair old carcasses in production line.

Whenever a new aviation DLR is going to be repaired at a DOP where it hasn't been repaired before, ASO should notify the DOP of the requirement so that the DOP can procure the needed repair equipment and train its technicians.

MID rates can be reduced by improving accuracy of part/unit identification regardless of the changed NIINs and new carcasses in inventory.

APPENDIX A

VTMR ANALYSIS AND DIFFERENCE COMPUTATION FOR LEVEL SCHEDULE AND ACTUAL SCHEDULE

1. Column definitions:

   a. C1: Serial number for DLRs

   b. C2: DOP code

   c. C3: Current Schedule (CS) for 4th quarter of FY 88

   d. C4: Level schedule (LS) for 4th quarter of FY 88

   e. C5: Actual Schedule (AS) for 4th quarter of FY 88

   f. C6: LS for 2nd quarter of FY 89

   g. C7: AS " " " " "

   h. C8: LS for 3rd quarter of FY 89

   i. C9: AS " " " " "

   j. C10: LS for 4th quarter of FY 89

   k. C11: AS " " " " "

   l. C12: CS for 2nd quarter of FY 89

   m. C13: LS for 1st quarter of FY 90

   n. C14: AS " " " " "

   o. C15: LS for 2nd quarter of FY 90

   p. C16: AS " " " " "

   r. C17: CS for 4th quarter of FY 89

   s. C20: VTMR for LS

t. C23: VTMR for AS

u. C24: Difference between AS and CS (C7-C12)

v. C25: Difference between AS and CS (C11-C17)

2. MINITAB program that produced this output:

```
MTB > read 'seconjob' c1-c17;
SUBC> format(f4.0,1x,a3,1x,15(f3.0,1x)).
    154 ROWS READ
* 54 blank fields converted to *

 ROW     C1     C2     C3     C4     C5     C6     C7     C8     C9    C10

   1   1100    PTZ      0      6      6      6      6      3      3      3
   2   1210    NAZ     17     70     51     32     51     47     30     47
   3   1212    NAZ     50     80     15     80     52     90     50     90
   4   1233    NAZ     45     33     63     33     33     54     65     54
  .   .   .

 ROW    C11    C12    C13    C14    C15    C16    C17

   1      3      1      4      4      4      4      3
   2     30     15    106     60    106     60     30
   3     90     50     69     85     69     85     90
   4     65     33     64     64     64     64     65
  .   .   .
MTB > let c18=(c4+c6+c8+c10+c13+c15)/6
MTB > let c19=((c4-c18)**2+(c6-c18)**2+(c8-c18)**2+(c10-c18)**2+(c13-c18)**2+(c1
    > 5-c18)**2)/5
MTB > let c20=c19/c18**2
MTB > let c20=c19/c18**2
                 J
*** VALUES OUT OF BOUNDS DURING OPERATION AT J
    MISSING RETURNED 8 TIMES

MTB > let c21=(c3+c5+c7+c9+c11+c14+c16)/7
MTB > let c22=((c3-c21)**2+(c5-c21)**2+(c7-c21)**2+(c9-c21)**2+(c11-c21)**2+(c14
    > -c21)**2+(c16-c21)**2)/6
MTB > let c23=c22/c21**2
MTB > let c23=c22/c21**2
                 J
*** VALUES OUT OF BOUNDS DURING OPERATION AT J
    MISSING RETURNED 5 TIMES

MTB > let c24=c7-c12
```

ROW	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C20	C23	C24	C25
1	1100	PTZ	0	6	6	6	6	3	3	3	3	1	4	4	4	4	3	0.099	0.307	5	0
2	1210	NAZ	17	70	51	32	51	47	30	47	30	15	106	60	106	60	30	0.219	0.157	36	0
3	1212	NAZ	50	80	15	80	52	90	50	90	90	50	69	85	69	85	90	0.013	0.198	2	0
4	1233	NAZ	45	33	63	33	33	54	65	54	65	33	64	64	64	64	65	0.079	0.050	0	0
5	1259	NAZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0
6	1286	NAZ	35	39	39	38	38	40	20	40	40	38	8	8	8	8	15	0.313	0.293	0	25
7	1410	NDZ	7	11	15	11	15	12	20	12	20	20	22	11	22	5	10	0.131	0.197	-5	10
8	*	NAZ	18	11	13	11	13	13	13	13	13	13	22	30	22	12	13	0.116	0.164	0	0
9	2019	NNZ	13	15	8	15	8	0	0	0	0	8	0	0	0	0	0	2.400	1.717	0	0
10	2041	NOZ	8	18	12	18	10	20	6	20	6	10	28	6	28	6	6	0.046	0.099	0	0
11	*	NNZ	6	18	25	18	20	20	15	20	11	20	28	24	28	15	11	0.046	0.173	0	0
12	2088	NNZ	10	6	8	6	8	11	11	11	11	8	23	14	23	9	20	0.363	0.043	0	-9
13	*	NOZ	9	6	11	6	10	11	11	11	11	10	23	10	23	16	18	0.343	0.041	0	-7
14	2093	NNZ	10	8	12	8	10	12	4	12	2	4	9	9	9	9	2	0.037	0.203	6	0
15	*	NOZ	4	8	7	8	4	12	8	12	8	4	8	7	8	7	12	0.048	0.071	0	-4
16	2118	NBZ	8	31	30	31	20	38	26	38	26	20	29	29	29	29	26	0.016	0.105	0	0
17	2119	NNZ	0	25	20	25	20	9	27	9	27	20	14	14	14	14	27	0.209	0.287	0	0
18	*	NOZ	0	9	25	9	25	38	20	38	20	25	14	14	14	14	20	0.465	0.265	0	0
19	2097	NOZ	27	20	30	20	25	18	18	18	20	20	22	0	22	0	20	0.008	0.522	5	0
20	*	NNZ	27	20	20	20	20	18	18	18	10	7	23	26	23	24	10	0.012	0.078	13	0
21	2315	NOZ	20	25	35	25	35	28	31	28	31	35	13	13	13	13	31	0.104	0.150	0	0
22	*	PTZ	20	25	5	25	15	28	14	28	14	15	13	13	13	14	14	0.104	0.108	0	0
23	2319	NNZ	0	21	5	21	5	24	7	25	7	5	18	18	18	18	7	0.019	0.639	0	0
24	*	NDZ	0	20	45	20	45	25	40	25	40	45	18	10	18	10	20	0.023	0.518	0	20
25	2440	NDZ	12	10	7	9	10	16	11	16	11	10	6	4	6	4	11	0.187	0.163	0	0
26	*	NNZ	7	9	4	10	0	16	16	16	12	0	25	12	25	12	12	0.171	0.382	0	0
27	2704	NNZ	0	54	0	53	0	71	50	71	50	20	12	21	41	21	50	0.191	1.215	-20	0
28	2750	NDZ	48	97	50	97	100	72	50	72	50	100	74	74	74	74	50	0.023	0.096	0	0
29	*	NNZ	48	24	75	24	45	18	50	18	50	75	74	74	74	74	50	0.505	0.055	-30	0
30	2763	NDZ	60	57	45	57	45	54	54	54	54	45	76	76	76	76	54	0.029	0.049	0	0
31	*	NNZ	35	58	21	58	21	55	55	55	55	21	72	42	77	42	55	0.023	0.132	0	0
32	2775	PTZ	50	15	31	15	31	13	35	13	30	31	96	73	96	73	30	1.050	0.180	0	0
33	*	NOZ	90	67	45	67	45	53	30	53	35	45	96	75	96	75	35	0.074	0.169	0	0
34	2796	NNZ	1	7	3	7	4	16	1	16	1	4	20	1	20	1	1	0.172	0.534	0	0
35	3017	NOZ	140	139	100	139	110	148	100	148	120	100	146	80	146	100	120	0.000	0.031	10	0
36	3018	NOZ	25	42	25	42	25	64	35	64	30	45	55	30	55	30	30	0.033	0.017	-20	0
37	*	NBZ	60	42	54	42	54	64	48	64	48	54	55	40	55	40	48	0.033	0.023	0	0

38	3024	NOZ	85	8	8	8	8	48	48	48	48	8	60	52	60	52	48	0.396	0.398	0	0
39	*	NBZ	15	8	8	8	8	48	48	48	48	8	59	70	59	70	48	0.392	0.524	0	0
40	3025	NBZ	71	46	46	46	46	36	36	36	36	46	58	38	58	38	36	0.044	0.079	0	0
41	3103	NOZ	11	14	14	14	14	17	17	17	17	14	25	25	25	25	17	0.074	0.097	0	0
42	3107	NOZ	32	25	20	25	25	16	16	16	16	10	20	20	20	20	16	0.039	0.069	15	0
43	3270	NBZ	5	10	6	10	6	7	3	7	3	6	4	2	4	2	3	0.146	0.211	0	0
44	3311	NOZ	60	84	50	84	55	89	50	89	55	55	187	60	187	60	70	0.187	0.006	0	-15
45	*	NNZ	90	84	84	84	84	89	75	89	75	84	47	101	47	81	75	0.078	0.011	0	0
46	3314	NOZ	40	48	48	48	48	47	47	47	47	48	67	67	67	67	47	0.034	0.041	0	0
47	3400	NBZ	30	26	26	26	26	27	27	27	27	26	10	10	10	10	27	0.165	0.145	0	0
48	3442	NBZ	17	52	52	52	52	50	50	50	50	52	17	40	17	40	50	0.196	0.085	0	0
49	3444	NBZ	9	1	3	1	3	2	2	2	2	3	6	6	6	6	2	0.622	0.354	0	0
50	3452	NBZ	5	5	10	5	10	9	13	9	13	10	27	35	27	35	13	0.588	0.513	0	0
51	3486	NBZ	30	0	0	0	0	0	0	0	0	0	58	58	58	58	0	2.400	1.755	0	0
52	3616	NAZ	0	0	17	0	11	18	18	18	18	11	11	13	11	13	18	0.704	0.240	0	0
53	3720	NOZ	3	0	0	0	0	0	0	0	0	0	0	2	0	2	2		1.666	0	-2
54	3732	NOZ	10	9	15	9	15	18	18	18	18	15	19	19	19	19	18	0.103	0.039	0	0
55	3772	NOZ	10	11	13	11	12	24	24	24	24	12	23	23	23	23	24	0.112	0.120	0	0
56	3782	NOZ	28	22	22	22	22	20	18	20	20	22	20	18	20	20	20	0.002	0.026	0	0
57	4136	NAZ	500	451	451	451	451	455	455	455	375	451	0	350	0	350	375	0.600	0.020	0	0
58	4139	NBZ	8	7	6	6	6	8	8	9	9	9	22	21	22	21	9	0.375	0.355	-3	0
59	*	NDZ	3	6	5	7	5	9	5	8	8	5	21	13	21	13	8	0.344	0.301	0	0
60	4143	NBZ	23	40	44	18	31	36	36	36	36	31	96	57	95	57	36	0.390	0.100	0	0
61	4148	NAZ	146	119	43	119	43	132	132	132	132	43	160	160	160	160	132	0.018	0.195	0	0
62	4153	NOZ	70	57	57	57	57	57	57	56	56	67	81	81	81	81	56	0.037	0.031	-10	0
63	*	NAZ	70	57	57	57	57	56	56	56	56	67	81	81	81	81	56	0.038	0.032	-10	0
64	4301	NOZ	28	30	30	30	30	19	19	19	19	30	36	36	36	36	19	0.074	0.061	0	0
65	*	NAZ	28	30	30	30	30	19	19	19	19	30	36	36	36	36	36	0.074	0.061	0	-17
66	4326	NAZ	20	49	36	49	43	23	23	23	23	43	14	14	14	14	23	0.321	0.196	0	0
67	*	NOZ	5	12	25	12	18	6	6	6	6	14	14	14	14	14	6	0.121	0.549	4	0
68	4347	NOZ	100	91	91	91	91	118	118	118	118	91	173	173	173	173	118	0.086	0.083	0	0
69	*	NBZ	100	91	91	91	91	118	118	118	118	91	173	173	173	173	118	0.086	0.083	0	0
70	4365	NOZ	50	105	105	105	105	154	30	154	20	105	100	85	100	65	60	0.049	0.272	0	-40
71	*	NAZ	150	105	105	105	155	154	200	154	200	155	100	129	100	129	200	0.049	0.056	0	0
72	4421	NNZ	0	0	0	0	0	0	0	0	0	0	259	45	258	10	45	2.400	4.570	0	-45
73	*	NDZ	0	0	0	0	0	0	0	0	0	0	259	65	258	65	0	2.400	2.916	0	0
74	4436	NOZ	10	44	25	44	44	36	10	35	35	8	35	35	35	35	35	0.014	0.229	36	0
75	*	NAZ	30	45	60	45	60	35	56	36	36	60	35	35	35	35	36	0.017	0.090	0	0
76	4437	NOZ	75	51	51	51	51	121	90	121	121	51	138	138	138	138	121	0.159	0.160	0	0
77	*	NAZ	75	51	51	51	51	121	135	121	135	51	138	138	138	138	107	0.159	0.167	0	28

78	4604	NOZ	2	2	4	2	3	7	7	7	7	10	10	10	10	10	7	0.325	0.277	-7	0
79	4721	NNZ	8	4	4	3	3	4	4	4	4	3	24	15	24	15	4	0.993	0.493	0	0
80	*	NOZ	8	3	3	4	4	4	4	4	4	4	6	15	6	15	4	0.074	0.493	0	0
81	4862	NOZ	27	4	0	4	0	0	0	0	0	0	0	0	0	0	0	2.400	6.999	0	0
82	*	PTZ	27	4	4	4	4	0	0	0	0	0	0	0	0	0	0	2.400	3.906	4	0
83	4874	NBZ	65	0	30	0	30	27	27	27	27	30	82	82	82	82	27	1.058	0.286	0	0
84	5144	PTZ	3	3	3	3	3	12	12	12	12	3	15	15	15	15	12	0.312	0.407	0	0
85	*	NDZ	3	3	3	3	3	13	13	13	13	3	16	16	16	16	13	0.325	0.428	0	0
86	5165	PTZ	49	44	44	44	44	27	39	27	39	44	19	19	19	19	39	0.146	0.113	0	0
87	*	NDZ	49	43	43	43	43	27	15	27	15	43	18	18	18	18	15	0.149	0.288	0	0
88	5166	PTZ	46	10	10	10	10	0	0	0	0	10	26	26	26	26	0	0.955	0.984	0	0
89	5167	PTZ	25	34	21	33	21	20	20	20	20	21	4	4	4	4	20	0.475	0.277	0	0
90	*	NDZ	38	9	23	9	23	5	5	5	5	23	4	4	4	4	5	0.155	0.861	0	0
91	5173	PTZ	0	31	25	31	25	49	25	49	25	15	76	10	76	10	25	0.151	0.364	10	0
92	*	NDZ	10	31	25	31	25	49	25	49	25	25	19	19	19	19	35	0.167	0.071	0	-10
93	5190	NDZ	30	5	30	5	30	14	14	14	14	30	14	14	14	14	14	0.178	0.168	0	0
94	*	PTZ	0	4	30	4	30	14	14	14	14	30	14	14	14	14	19	0.234	0.401	0	-5
95	5193	NDZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0
96	*	PTZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0
97	5208	NDZ	5	21	21	21	21	10	26	10	26	21	11	27	11	27	26	0.151	0.130	0	0
98	*	NNZ	10	20	20	20	20	42	26	42	26	20	43	27	43	27	26	0.110	0.078	0	0
99	5220	NAZ	20	17	17	17	17	25	0	25	0	3	45	45	45	45	0	0.197	0.813	14	0
100	5248	NAZ	5	20	5	20	5	20	6	20	6	2	26	7	26	7	8	0.019	0.023	3	-2
101	5250	NAZ	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0		2.916	1	0
102	*	NDZ	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0		2.916	1	0
103	5254	NDZ	3	4	2	4	0	4	8	4	8	0	3	2	3	2	8	0.019	0.780	0	0
104	*	NAZ	3	4	0	4	0	4	0	4	0	0	3	2	3	2	0	0.019	1.666	0	0
105	5317	NAZ	60	60	60	60	60	49	49	49	49	15	65	35	65	35	30	0.015	0.050	45	19
106	5330	NDZ	10	20	20	15	15	12	5	12	5	15	8	5	8	5	5	0.132	0.428	0	0
107	*	NAZ	30	20	20	10	10	10	10	10	10	10	7	10	7	10	10	0.202	0.303	0	0
108	5402	NDZ	24	17	17	17	17	3	3	3	3	17	10	10	10	10	3	0.392	0.421	0	0
109	*	NAZ	17	4	4	4	4	9	9	9	9	4	3	3	3	3	9	0.636	0.977	0	0
110	5415	NDZ	20	31	20	31	20	27	17	27	17	20	27	12	27	12	17	0.005	0.045	0	0
111	5450	NOZ	85	100	85	100	30	85	90	86	45	30	90	45	90	45	45	0.005	0.168	0	0
112	*	NAZ	88	100	60	100	100	85	90	86	60	100	90	52	90	52	60	0.005	0.079	0	0
113	5455	NDZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0
114	*	NAZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0
115	6013	NOZ	15	15	15	15	15	31	31	31	31	20	35	8	35	8	31	0.122	0.304	-5	0
116	6106	PTZ	20	11	5	11	5	0	0	0	0	5	0	0	0	0	0	2.400	2.916	0	0
117	6150	NDZ	40	35	35	35	35	36	36	36	36	35	41	49	41	49	36	0.005	0.025	0	0

118	*	PTZ	40	36	36	35	35	36	36	36	36	35	42	29	42	29	36	0.007	0.013	0	0
119	6153	PTZ	10	26	26	26	26	15	20	15	20	26	19	10	19	10	10	0.062	0.178	0	10
120	6155	PTZ	30	32	32	32	32	33	33	32	32	32	44	44	44	44	32	0.028	0.029	0	0
121	*	NDZ	30	32	32	32	32	33	33	32	32	32	43	43	43	43	32	0.024	0.025	0	0
122	6157	NDZ	15	30	20	30	20	22	40	22	10	20	44	44	44	44	20	0.096	0.279	0	-10
123	*	PTZ	14	8	18	8	18	6	6	6	6	18	11	11	11	11	16	0.072	0.173	0	-10
124	6166	NDZ	17	34	28	34	28	43	43	43	43	28	53	53	53	53	43	0.038	0.132	0	0
125	*	PTZ	16	9	15	9	15	11	11	11	11	15	13	13	13	13	11	0.026	0.021	0	0
126	6171	NDZ	24	19	8	19	27	24	15	23	15	27	37	37	37	37	15	0.100	0.234	0	0
127	*	PTZ	6	19	19	19	19	24	10	24	10	15	38	6	37	6	10	0.101	0.289	4	0
128	6256	NDZ	5	5	5	5	5	2	2	2	4	5	4	5	4	3	4	0.138	0.086	0	0
129	6304	NDZ	25	12	20	12	20	16	30	16	30	30	26	32	26	32	30	0.128	0.038	-10	0
130	*	NBZ	60	46	34	46	34	60	48	60	48	34	100	65	100	65	48	0.133	0.069	0	0
131	6310	NBZ	80	94	49	94	49	39	45	39	65	49	80	75	80	75	65	0.129	0.055	0	0
132	*	NDZ	10	23	20	23	15	10	16	10	10	10	20	8	20	8	10	0.118	0.137	5	0
133	6356	NBZ	10	1	5	1	5	12	8	12	8	5	10	7	10	7	8	0.467	0.061	0	0
134	6504	NNZ	5	5	6	5	6	14	20	14	20	6	32	30	32	30	20	0.523	0.442	0	0
135	6719	PTZ	0	3	2	3	2	7	6	6	6	2	3	3	3	3	2	0.193	0.486	0	4
136	6817	NNZ	8	15	15	15	15	20	20	20	20	15	24	15	24	13	20	0.042	0.074	0	0
137	*	NDZ	12	14	14	14	14	19	19	19	19	14	23	32	23	34	19	0.046	0.187	0	0
138	6825	NNZ	10	23	10	23	10	22	22	22	22	10	10	20	10	20	22	0.124	0.132	0	0
139	*	NOZ	8	23	15	23	15	22	9	21	9	9	9	8	9	8	9	0.148	0.099	6	0
140	6827	NNZ	14	5	5	5	5	4	4	4	4	5	14	8	14	8	4	0.412	0.272	0	0
141	*	NOZ	14	4	4	4	4	3	3	3	3	4	3	3	3	3	3	0.024	0.698	0	0
142	7434	PTZ	30	31	31	31	31	0	0	0	0	0	0	0	0	0	0	2.399	1.556	31	0
143	*	NOZ	30	31	31	31	31	0	0	0	0	0	0	0	0	0	0	2.399	1.556	31	0
144	7436	NOZ	2	9	9	9	9	3	3	3	3	5	0	0	0	0	0	1.050	1.056	4	3
145	*	PTZ	7	12	5	12	5	12	3	12	3	5	0	0	0	0	0	0.600	0.639	0	3
146	9003	PTZ	0	2	0	2	0	1	0	1	0	0	3	1	3	1	0	0.200	2.916	0	0
147	*	NOZ	5	2	3	2	3	1	2	3	3	2	1	1	1	1	3	0.260	0.295	1	0
148	9004	PTZ	1	0	0	0	0	1	1	1	1	0	2	2	2	2	1	0.800	0.666	0	0
149	*	NOZ	1	0	0	0	0	2	0	2	0	0	6	3	6	3	0	1.050	2.000	0	0
150	9005	NNZ	25	45	33	45	33	44	13	43	13	20	49	25	49	25	13	0.003	0.119	13	0
151	9025	NOZ	2	8	8	11	11	4	3	4	3	8	3	0	3	0	0	0.353	1.152	3	3
152	9038	NOZ	0	1	1	1	1	2	0	2	0	1	2	0	2	0	0	0.096	2.916	0	0
153	*	NAZ	0	1	1	1	1	6	3	6	3	1	9	5	9	5	3	0.459	0.597	0	0
154	9069	NNZ	0	1	1	1	1	10	0	9	0	0	10	0	10	0	0	0.440	2.916	1	0

APPENDIX B

DIFFERENCES BETWEEN ASO ACTUAL SCHEDULES AND DOP OUTPUTS

1. Column definition:

   a. C1: Serial number for DLRs

   b. C2: DOP code

   c. C3: Current Schedule (CS) for 4th quarter of FY 88 (assumed as actual)

   d. C4: Level Schedule (LS) for 1st quarter of FY 89

   e. C5: Actual Schedule (AS) " " " " "

   f. C6: LS for 2nd quarter of FY 89

   g. C7: AS " " " " "

   h. C8: LS for 3rd quarter of FY 89

   i. C9: AS " " " " "

   j. C10: LS for 4th quarter of FY 89

   k. C11: AS " " " " "

   l. C12: DOP output for 4th quarter of FY 88

   m. C13: " " " 1st " " "

   n. C14: " " " 2nd " " "

   o. C15: " " " 3rd " " "

   p. C16: " " " 4th " " "

   r. C17: Difference between ASO AS and DOP output for 4th qtr. of FY 88

   s. C18: " " " " " 1st quarter of FY 89

   t. C19: " " " " " 2nd " " "

u. C20: " " " " " 3rd " " "

v. C21: " " " " " 4th " " "

MINITAB program that produced this output:

```
 ROW   C1   C2   C3   C4   C5   C6   C7   C8   C9  C10

  1  1100  PITZ    0    6    6    6    6    3    3    3
  2  1210  NAZ    17   70   51   32   51   47   30   47
  3  1212  NAZ    50   80   15   80   52   90   50   90
  4  1259  NAZ     0    0    0    0    0    0    0    0
 . . .


C11
   3   30   90    0  . . .

MTB > read '3articler' c12-c16
   127 ROWS READ

 ROW   C12   C13   C14   C15   C16

  1     0     0     2     3     4
  2    17    51    33    30    30
  3    51    24    57    70    90
  4     0     0     0     0     0
 . . .

MTB > let c17 = c3-c12
MTB > let c18 = c5-c13
MTB > let c19 = c7-c14
MTB > let c20 = c9-c15
MTB > let c21 = c11-c16
MTB > describe c17

          N    MEAN  MEDIAN  TRMEAN   STDEV  SEMEAN
C17     127  -2.291   0.000  -1.183  10.880   0.965

         MIN     MAX      Q1      Q3
C17   -81.000  21.000  -3.000   0.000

MTB > describe c18

          N    MEAN  MEDIAN  TRMEAN   STDEV  SEMEAN
C18     127   0.102   0.000  -0.061   8.751   0.777

         MIN     MAX      Q1      Q3
C18   -43.000  56.000  -1.000   0.000

MTB > describe c19

          N    MEAN  MEDIAN  TRMEAN   STDEV  SEMEAN
C19     127  -1.73    0.00   -0.31   16.84    1.49

         MIN     MAX      Q1      Q3
C19  -165.00   36.00   -1.00    0.00

MTB > describe c20

          N    MEAN  MEDIAN  TRMEAN   STDEV  SEMEAN
C20     127  -1.87    0.00   -1.44   11.74    1.04

         MIN     MAX      Q1      Q3
C20   -67.00   53.00   -1.00    0.00

MTB > describe c21

          N    MEAN  MEDIAN  TRMEAN   STDEV  SEMEAN
C21     127  -2.27    0.00   -1.29   12.78    1.13

         MIN     MAX      Q1      Q3
C21  -100.00   28.00   -1.00    0.00

MTB > print c1-c21
```

```
MTB > read 'assocmst' c1-c11;
SUBC> format(f4.0,1x,a3,1x,9(f3.0,1x)).
   127 ROWS READ
* 43 blank fields converted to *

 ROW    C1    C2    C3    C4    C5    C6    C7    C8    C9   C10

   1  1100   PIZ     0     6     6     6     6     3     3     3
   2  1210   NAZ    17    70    51    32    51    47    30    47
   3  1212   NAZ    50    80    15    80    52    90    50    90
   4  1259   NAZ     0     0     0     0     0     0     0     0
 . . .


 C11
    3    30    90     0  . . .

MTB > read 'fmtreler' c12-c16
   127 ROWS READ

 ROW   C12   C13   C14   C15   C16

   1     0     0     2     3     4
   2    17    51    33    30    30
   3    51    24    57    70    90
   4     0     0     0     0     0
 . . .

MTB > let c17 = c3-c12
MTB > let c18 = c5-c13
MTB > let c19 = c7-c14
MTB > let c20 = c9-c15
MTB > let c21 = c11-c16
MTB > describe c17

            N     MEAN   MEDIAN  TRMEAN    STDEV   SEMEAN
C17       127   -2.291    0.000   -1.183   10.880    0.965

            MIN      MAX       Q1       Q3
C17     -81.000   21.000   -3.000    0.000

MTB > describe c18

            N     MEAN   MEDIAN  TRMEAN    STDEV   SEMEAN
C18       127    0.102    0.000   -0.061    8.751    0.777

            MIN      MAX       Q1       Q3
C18     -43.000   56.000   -1.000    0.000

MTB > describe c19

            N     MEAN   MEDIAN  TRMEAN    STDEV   SEMEAN
C19       127   -1.73     0.00    -0.31    16.84     1.49

            MIN      MAX       Q1       Q3
C19    -165.00    36.00    -1.00     0.00

MTB > describe c20

            N     MEAN   MEDIAN  TRMEAN    STDEV   SEMEAN
C20       127   -1.87     0.00    -1.44    11.74     1.04

            MIN      MAX       Q1       Q3
C20     -67.00    53.00    -1.00     0.00

MTB > describe c21

            N     MEAN   MEDIAN  TRMEAN    STDEV   SEMEAN
C21       127   -2.27     0.00    -1.29    12.78     1.13

            MIN      MAX       Q1       Q3
C21    -100.00    28.00    -1.00     0.00

MTB > print c1-c21
```

ROW	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21
1	1100	PTZ	0	6	6	6	6	3	3	3	3	0	0	2	3	4	0	6	4	0	-1
2	1210	NAZ	17	70	51	32	51	47	30	47	30	17	51	33	30	30	0	0	18	0	0
3	1212	NAZ	50	80	15	80	52	90	50	90	90	51	24	57	70	90	-1	-9	-5	-20	0
4	1259	NAZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1286	NAZ	35	39	39	38	38	40	20	40	40	30	39	38	20	15	5	0	0	0	25
6	2019	NNZ	13	15	8	15	8	0	0	0	0	13	4	8	0	1	0	4	0	0	-1
7	2041	NOZ	8	18	12	18	10	20	6	20	6	9	12	4	9	6	-1	0	6	-3	0
8	*	NNZ	6	18	25	18	20	20	15	20	11	7	28	25	32	19	-1	-3	-5	-17	-8
9	2088	NNZ	10	6	8	6	8	11	11	11	11	13	8	16	11	20	-3	0	-8	0	-9
10	*	NOZ	9	6	11	6	10	11	11	11	11	18	8	1	10	11	-9	3	9	1	0
11	2118	NBZ	8	31	30	31	20	38	26	38	26	14	30	21	30	28	-6	0	-1	-4	-2
12	2119	NNZ	0	25	20	25	20	9	27	9	27	14	26	29	27	28	-14	-6	-9	0	-1
13	*	NOZ	0	9	25	9	25	38	20	38	20	7	13	31	26	29	-7	12	-6	-6	-9
14	2097	NOZ	27	20	30	20	25	18	18	18	20	28	12	20	8	2	-1	18	5	10	18
15	*	NNZ	27	20	20	20	20	18	18	18	10	33	19	15	18	11	-6	1	5	0	-1
16	2315	NOZ	20	25	35	25	35	28	31	28	31	20	35	35	31	32	0	0	0	0	-1
17	*	PTZ	20	25	5	25	15	28	14	28	14	20	24	15	14	14	0	-19	0	0	0
18	2319	NNZ	0	21	5	21	5	24	7	25	7	15	11	8	7	8	-15	-6	-3	0	-1
19	*	NOZ	0	20	45	20	45	25	40	25	40	27	46	37	26	21	-27	-1	8	14	19
20	2440	NBZ	12	10	7	9	10	16	11	16	11	12	7	10	11	3	0	0	0	0	8
21	*	NNZ	7	9	4	10	0	16	16	16	12	8	12	5	16	12	-1	-8	-5	0	0
22	2704	NNZ	0	54	0	53	0	71	50	71	50	32	14	22	56	22	-32	-14	-22	-6	28
23	2750	NOZ	48	97	50	97	100	72	50	72	50	52	53	105	54	50	-4	-3	-5	-4	0
24	*	NNZ	48	24	75	24	45	18	50	18	50	54	73	80	57	50	-6	2	-35	-7	0
25	2763	NDZ	60	57	45	57	45	54	54	54	54	60	45	47	56	55	0	0	-2	-2	-1
26	*	NNZ	35	58	21	58	21	55	55	55	55	40	21	49	56	50	-5	0	-28	-1	5
27	2775	PTZ	50	15	31	15	31	13	35	13	30	50	37	31	35	30	0	-6	0	0	0
28	*	NOZ	90	67	45	67	45	53	30	53	35	90	43	45	30	35	0	-2	0	0	0
29	2796	NNZ	1	7	3	7	4	16	1	16	1	16	4	20	13	13	-15	-1	-16	-12	-12
30	3017	NOZ	140	139	100	139	110	148	100	148	120	121	101	100	100	108	19	-1	10	0	12
31	3018	NOZ	25	42	25	42	25	64	35	64	30	25	25	45	35	30	0	0	-20	0	0
32	*	NBZ	60	42	54	42	54	64	48	64	48	61	54	54	60	48	-1	0	0	-12	0
33	3024	NOZ	85	8	8	8	8	48	48	48	48	64	8	9	47	48	21	0	-1	1	0
34	*	NBZ	15	8	8	8	8	48	48	48	48	15	8	8	49	48	0	0	0	-1	0
35	3025	NBZ	71	46	46	46	46	36	36	36	36	72	46	46	36	36	-1	0	0	0	0
36	3105	NOZ	11	14	14	14	14	17	17	17	17	11	15	13	17	17	0	-1	1	0	0
37	3107	NOZ	32	25	20	25	25	16	16	16	16	25	9	15	17	15	7	11	10	-1	1
38	3270	NBZ	5	10	6	10	6	7	3	7	3	17	24	12	5	9	-12	-18	-6	-2	-6
39	3311	NOZ	60	84	50	84	55	89	50	89	55	61	50	55	65	71	-1	0	0	-15	-16
40	*	NNZ	90	84	84	84	84	89	75	89	75	90	84	85	90	75	0	0	-1	-15	0
41	3314	NOZ	40	48	48	48	48	47	47	47	47	42	38	48	49	48	-2	10	0	-2	-1
42	3400	NBZ	30	26	26	26	26	27	27	27	27	30	26	26	27	26	0	0	0	0	1
43	3442	NBZ	17	52	52	52	52	50	50	50	50	18	52	52	34	67	-1	0	0	16	-17

44	3444	NBZ	9	1	3	1	3	2	2	2	2	13	6	3	1	3	-4	-3	0	1	-1
45	3452	NBZ	5	5	10	5	10	9	13	9	13	10	9	10	9	14	-5	1	0	4	-1
46	3486	NBZ	30	0	0	0	0	0	0	0	0	30	6	0	0	100	0	-6	0	0	-100
47	3616	NAZ	0	0	17	0	11	18	18	18	18	19	17	11	18	18	-19	0	0	0	0
48	3720	NOZ	3	0	0	0	0	0	0	0	0	1	1	0	0	2	2	-1	0	0	-2
49	3732	NOZ	10	9	15	9	15	18	18	18	18	10	15	15	18	17	0	0	0	0	1
50	3772	NOZ	10	11	13	11	12	24	24	24	24	10	16	12	24	24	0	-3	0	0	0
51	3782	NOZ	28	22	22	22	22	20	18	20	20	31	22	21	19	22	-3	0	1	-1	-2
52	4139	NBZ	8	7	6	6	6	8	8	9	9	4	10	20	10	10	4	-4	-14	-2	-1
53	*	NOZ	3	6	5	7	5	9	5	8	8	6	4	5	5	13	-3	1	0	0	-5
54	4143	NBZ	23	40	44	18	31	36	36	36	36	23	44	31	64	61	0	0	0	-28	-25
55	4148	NAZ	146	119	43	119	43	132	132	132	132	146	43	43	132	132	0	0	0	0	0
56	4301	NOZ	28	30	30	30	30	19	19	19	19	29	30	31	19	19	-1	0	-1	0	0
57	*	NAZ	28	30	30	30	30	19	19	19	19	28	30	30	19	19	0	0	0	0	0
58	4326	NAZ	20	49	36	49	43	23	23	23	23	22	37	43	23	23	-2	-1	0	0	0
59	*	NOZ	5	12	25	12	18	6	6	6	6	7	25	12	6	6	-2	0	6	0	0
60	4347	NOZ	100	91	91	91	91	118	118	118	118	100	91	90	118	117	0	0	1	0	1
61	*	NBZ	100	91	91	91	91	118	118	118	118	99	91	92	113	123	1	0	-1	5	-5
62	4365	NOZ	50	105	105	105	105	154	30	154	20	50	49	105	31	60	0	56	0	-1	-40
63	*	NAZ	150	105	105	105	155	154	200	154	200	156	104	156	199	201	-6	1	-1	1	-1
64	4421	NNZ	0	0	0	0	0	0	0	0	0	0	0	3	46	45	0	0	-3	-46	-45
65	*	NOZ	0	0	0	0	0	0	0	0	0	0	0	5	67	0	0	0	-5	-67	0
66	4436	NOZ	10	44	25	44	44	36	10	35	35	10	16	8	10	35	0	9	36	0	0
67	*	NAZ	30	45	60	45	60	35	56	36	36	31	60	60	56	36	-1	0	0	0	0
68	4437	NOZ	75	51	51	51	51	121	90	121	121	77	50	51	90	121	-2	1	0	0	0
69	*	NAZ	75	51	51	51	51	121	135	121	135	75	51	51	135	134	0	0	0	0	1
70	4604	NOZ	2	2	4	2	3	7	7	7	7	2	4	11	6	3	0	0	-8	1	4
71	4721	NNZ	8	4	4	3	3	4	4	4	4	8	4	3	4	4	0	0	0	0	0
72	*	NOZ	8	3	3	4	4	4	4	4	4	8	3	4	4	4	0	0	0	0	0
73	4862	NOZ	27	4	0	4	0	0	0	0	0	34	3	1	0	0	-7	-3	-1	0	0
74	*	PTZ	27	4	4	4	0	0	0	0	0	27	0	0	0	0	4	4	4	0	0
75	4874	NBZ	65	0	30	0	30	27	27	27	27	66	30	29	27	27	-1	0	1	0	0
76	5144	PTZ	3	3	3	3	3	12	12	12	12	3	3	3	12	12	0	0	0	0	0
77	*	NOZ	3	3	3	3	3	13	13	13	13	7	7	5	13	15	-4	-4	-2	0	-2
78	5167	PTZ	25	34	21	33	21	20	20	20	20	25	21	21	20	20	0	0	0	0	0
79	*	NOZ	38	9	23	9	23	5	5	5	5	41	24	27	8	8	-3	-1	-4	-3	-3
80	5173	PTZ	0	31	25	31	25	49	25	49	25	3	24	14	14	29	-3	1	11	11	-4
81	*	NOZ	10	31	25	31	25	49	25	49	25	11	25	14	45	50	-1	0	11	-20	-25
82	5190	NOZ	30	5	30	5	30	14	14	14	14	22	30	195	42	16	8	0	-165	-28	-2
83	*	PTZ	0	4	30	4	30	14	14	14	14	81	51	57	25	14	-81	-21	-27	-11	0
84	5208	NDZ	5	21	21	21	21	10	26	10	26	12	12	15	19	26	-7	9	6	7	0
85	*	NNZ	10	20	20	20	20	42	26	42	26	10	20	21	27	26	0	0	-1	-1	0
86	5220	NAZ	20	17	17	17	25	0	25	0	3	20	0	0	19	1	0	17	25	6	2

87	5248	NAZ	5	20	5	20	5	20	6	20	6	5	5	5	13	7	0	0	0	-7	-1
88	5250	NAZ	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0
89	5254	NDZ	3	4	2	4	0	4	8	4	8	4	2	0	8	8	-1	0	0	0	0
90	*	NAZ	3	4	0	4	0	4	0	4	0	0	0	0	0	3	0	0	0	0	0
91	5330	NDZ	10	20	20	15	15	12	5	12	5	13	20	15	9	5	-3	0	0	-4	0
92	*	NAZ	30	20	20	10	10	10	10	10	10	30	15	10	10	10	0	5	0	0	0
93	5402	NDZ	24	17	17	17	17	3	3	3	3	18	5	5	4	3	6	12	12	-1	0
94	*	NAZ	17	4	4	4	4	0	9	0	0	24	14	4	9	0	-7	-10	0	0	0
95	5415	NDZ	20	31	20	31	20	27	17	27	17	21	20	20	18	17	-1	0	0	-1	0
96	5450	NOZ	85	100	85	100	30	85	90	86	45	84	51	30	37	47	1	34	0	53	-2
97	*	NAZ	88	100	60	100	100	85	90	86	60	151	103	100	90	75	-63	-43	0	0	-15
98	5455	NDZ	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	-1	0	0
99	*	NAZ	0	0	0	0	0	0	0	0	0	1	3	1	0	0	-1	-3	-1	0	0
100	6013	NOZ	15	15	15	15	15	31	31	31	31	7	10	10	6	10	8	5	5	25	21
101	6106	PTZ	20	11	5	11	5	0	0	0	0	20	5	5	0	0	0	0	0	0	0
102	6153	PTZ	10	26	26	26	26	15	20	15	20	13	24	26	20	10	-3	0	0	0	10
103	6155	PTZ	30	32	32	32	32	33	33	32	32	30	32	32	33	32	0	0	0	0	0
104	*	NDZ	30	32	32	32	32	33	33	32	32	17	46	43	44	32	13	-14	-11	-11	0
105	6166	NDZ	17	34	28	34	28	43	43	43	43	10	32	34	11	42	7	-4	-6	32	1
106	*	PTZ	16	9	15	9	15	11	13	11	13	16	15	16	11	11	0	0	-1	0	0
107	6171	NDZ	24	19	8	19	27	24	15	23	15	11	9	11	15	18	13	2	16	0	-3
108	*	PTZ	6	19	19	19	19	24	10	24	10	9	20	15	10	10	-3	-1	4	0	0
109	6256	NDZ	5	5	5	5	5	2	2	2	4	4	1	0	2	1	1	4	5	0	3
110	6356	NBZ	10	1	5	1	5	12	8	12	8	4	6	5	8	6	0	-1	0	0	2
111	6504	NNZ	5	5	6	5	6	14	20	14	20	5	12	31	20	32	0	-6	-25	0	-12
112	6719	PTZ	0	3	2	3	2	7	6	6	6	2	2	2	4	2	-2	0	0	2	4
113	6817	NNZ	8	15	15	15	15	20	20	20	20	13	15	15	20	20	-5	0	0	0	0
114	*	NDZ	12	14	14	14	14	19	13	19	13	13	14	14	10	10	-1	0	0	0	0
115	6825	NNZ	10	23	10	23	10	22	22	22	22	10	9	12	22	22	0	1	-2	0	0
116	*	NOZ	8	23	15	23	15	22	9	21	9	8	15	9	5	9	0	0	6	4	0
117	6827	NNZ	14	5	5	5	5	4	4	4	4	14	5	5	4	4	0	0	0	0	0
118	*	NAZ	14	4	4	4	4	3	3	3	3	14	4	4	3	3	0	0	0	0	0
119	7434	PTZ	30	31	31	31	31	0	0	0	0	30	31	31	27	27	0	0	0	-27	-27
120	*	NOZ	30	31	31	31	31	0	0	0	0	30	31	31	27	26	0	0	0	-27	-26
121	7436	NOZ	2	9	9	9	9	3	3	3	3	2	9	2	7	8	0	0	7	-4	-5
122	*	PTZ	7	12	5	12	5	12	3	12	3	6	3	6	25	25	1	2	-1	-22	-22
123	9003	PTZ	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
124	*	NOZ	5	2	3	2	3	1	2	3	3	5	3	2	1	3	0	0	1	1	0
125	9025	NOZ	2	8	8	11	11	4	3	4	3	2	6	8	3	3	0	2	3	0	0
126	9038	NOZ	0	1	1	1	1	2	0	2	0	0	0	0	0	3	0	1	1	0	0
127	*	NAZ	0	1	1	1	1	6	3	6	3	0	1	1	3	3	0	0	0	0	0

MTB > end
MTB > nopaper

APPENDIX C

DOP OUTPUTS PROVIDED BY NAVDAC

1. Column definition:

   a. FIC: Family Identification Code

   b. NIIN: National Stock Number

   c. DOP: Designated Overall Point

      * 1: PTZ (Chery Point)

      * 2: NBZ (Jacksonville)

      * 3: NNZ (Norfolk)

      * 5: NAZ (Pensecola)

      * 6: NOZ (Alameda)

      * 7: NDZ (North Island)

      * 8: NAC

   d. RFI: Ready For Issue

   f. SUR: Surveyed: Quantity returned in A condition

   g. G: Quantity returned in a category codes 2, 3, 4

   h. MID: " " mis-identified

   i. MNR: " " miscellaneous non-RFI

   j. PCAN: Production cancellation. Quantity returned to supply as FO

   k. TRET: Total of RFI, SUR, G, MID, MNR and PCAN

FILE: NPGS8589 ASC A1

FIC	NIIN	DOP	FYQTR	RFI	SUR	G	MID	MNR	PCAN	TRET
"ALR1"	"000534085"	"1"	"85YY"	48,	0,	5,	1,	0,	0,	54
"ALR1"	"000534085"	"1"	"86YY"	5,	0,	33,	1,	0,	0,	39
"ALR1"	"000534085"	"1"	"87YY"	5,	0,	10,	0,	0,	0,	15
"ALR1"	"000534085"	"1"	"88Q1"	2,	0,	5,	1,	0,	0,	8
"ALR1"	"000534085"	"1"	"88Q2"	2,	0,	0,	0,	0,	0,	2
"ALR1"	"000534085"	"1"	"88Q3"	8,	0,	0,	0,	0,	0,	8
"ALR1"	"000534085"	"1"	"88Q4"	6,	0,	5,	1,	0,	0,	12
"ALR1"	"000534085"	"1"	"89Q1"	3,	0,	0,	0,	0,	0,	3
"ALR1"	"000534085"	"1"	"89Q2"	6,	0,	0,	0,	0,	0,	6
"ALR1"	"000534085"	"1"	"89Q3"	25,	0,	0,	0,	0,	0,	25
"ALR1"	"000534085"	"1"	"89Q4"	25,	0,	0,	0,	0,	0,	25
"ALR1"	"000534085"	"6"	"85YY"	14,	0,	0,	2,	0,	0,	16
"ALR1"	"000534085"	"6"	"86YY"	42,	0,	0,	1,	0,	0,	43
"ALR1"	"000534085"	"6"	"87YY"	16,	9,	4,	0,	0,	0,	29
"ALR1"	"000534085"	"6"	"88Q1"	2,	0,	0,	0,	0,	0,	2
"ALR1"	"000534085"	"6"	"88Q2"	3,	0,	0,	1,	0,	0,	4
"ALR1"	"000534085"	"6"	"88Q3"	0,	0,	4,	1,	0,	0,	5
"ALR1"	"000534085"	"6"	"88Q4"	2,	0,	1,	0,	0,	0,	3
"ALR1"	"000534085"	"6"	"89Q1"	9,	0,	1,	0,	0,	0,	10
"ALR1"	"000534085"	"6"	"89Q2"	2,	0,	5,	0,	0,	0,	7
"ALR1"	"000534085"	"6"	"89Q3"	7,	1,	0,	0,	0,	0,	8
"ALR1"	"000534085"	"6"	"89Q4"	8,	1,	0,	1,	0,	0,	10
"AQ9A"	"011842399"	"3"	"85YY"	50,	15,	0,	0,	0,	0,	65
"AQ9A"	"011842399"	"3"	"86YY"	47,	8,	3,	0,	0,	0,	58
"AQ9A"	"011842399"	"3"	"87YY"	26,	10,	1,	1,	0,	0,	38
"AQ9A"	"011842399"	"3"	"88Q1"	12,	2,	0,	0,	0,	0,	14
"AQ9A"	"011842399"	"3"	"88Q2"	11,	1,	0,	0,	0,	0,	12
"AQ9A"	"011842399"	"3"	"88Q3"	21,	0,	0,	0,	0,	0,	21
"AQ9A"	"011842399"	"3"	"88Q4"	13,	0,	0,	0,	0,	0,	13
"AQ9A"	"011842399"	"3"	"89Q1"	15,	0,	0,	0,	0,	0,	15
"AQ9A"	"011842399"	"3"	"89Q2"	15,	0,	0,	0,	0,	0,	15
"AQ9A"	"011842399"	"3"	"89Q3"	20,	0,	0,	0,	0,	0,	20
"AQ9A"	"011842399"	"3"	"89Q4"	20,	0,	0,	0,	0,	0,	20
"AQ9A"	"011842399"	"6"	"85YY"	57,	0,	0,	0,	0,	0,	57
"AQ9A"	"011842399"	"6"	"86YY"	72,	0,	0,	2,	0,	0,	74
"AQ9A"	"011842399"	"6"	"87YY"	53,	0,	0,	0,	0,	0,	53
"AQ9A"	"011842399"	"6"	"88Q1"	12,	0,	0,	0,	0,	0,	12
"AQ9A"	"011842399"	"6"	"88Q2"	10,	0,	0,	1,	0,	0,	11
"AQ9A"	"011842399"	"6"	"88Q3"	12,	0,	0,	0,	0,	0,	12
"AQ9A"	"011842399"	"6"	"88Q4"	13,	0,	0,	1,	0,	0,	14
"AQ9A"	"011842399"	"6"	"89Q1"	14,	0,	0,	0,	0,	0,	14
"AQ9A"	"011842399"	"6"	"89Q2"	14,	0,	0,	0,	0,	0,	14
"AQ9A"	"011842399"	"6"	"89Q3"	10,	0,	0,	0,	0,	0,	10
"AQ9A"	"011842399"	"6"	"89Q4"	10,	0,	0,	1,	0,	0,	11
"AREA"	"001610039"	"5"	"86YY"	12,	0,	0,	5,	0,	2,	19
"AREA"	"001610039"	"5"	"87YY"	18,	0,	3,	0,	0,	0,	21
"AREA"	"001610039"	"5"	"88Q1"	1,	0,	0,	0,	0,	0,	1
"AREA"	"001610039"	"5"	"88Q2"	2,	0,	0,	0,	0,	0,	2
"AREA"	"001610039"	"7"	"85YY"	55,	0,	1,	1,	0,	0,	57
"AREA"	"001610039"	"7"	"86YY"	40,	0,	8,	13,	0,	0,	61
"AREA"	"001610039"	"7"	"87YY"	41,	0,	0,	3,	0,	0,	44
"AREA"	"001610039"	"7"	"88Q1"	3,	0,	0,	0,	0,	0,	3
"AREA"	"001610039"	"7"	"88Q2"	1,	2,	3,	0,	0,	0,	6

"AREA"	"001610039"	"7"	"88Q3"	7,	0,	0,	1,	0,	0,	8
"AREA"	"001610039"	"7"	"88Q4"	5,	0,	0,	0,	0,	0,	5
"AREA"	"001610039"	"7"	"89Q3"	6,	0,	0,	0,	0,	0,	6
"AREA"	"001610039"	"7"	"89Q4"	4,	0,	0,	1,	0,	0,	5
"ARWA"	"010827188"	"2"	"85YY"	102,	1,	0,	2,	0,	1,	106
"ARWA"	"010827188"	"2"	"86YY"	182,	0,	0,	6,	0,	0,	188
"ARWA"	"010827188"	"2"	"87YY"	162,	0,	7,	5,	0,	0,	174
"ARWA"	"010827188"	"2"	"88Q1"	41,	0,	4,	0,	0,	0,	45
"ARWA"	"010827188"	"2"	"88Q2"	40,	0,	0,	1,	0,	0,	41
"ARWA"	"010827188"	"2"	"88Q3"	60,	0,	0,	1,	0,	0,	61
"ARWA"	"010827188"	"2"	"88Q4"	61,	0,	0,	2,	0,	0,	63
"ARWA"	"010827188"	"2"	"89Q1"	54,	0,	0,	0,	0,	0,	54
"ARWA"	"010827188"	"2"	"89Q2"	54,	0,	0,	0,	0,	0,	54
"ARWA"	"010827188"	"2"	"89Q3"	60,	0,	0,	4,	0,	0,	64
"ARWA"	"010827188"	"2"	"89Q4"	48,	0,	0,	2,	0,	0,	50
"ARWA"	"010827188"	"6"	"85YY"	82,	0,	0,	0,	0,	0,	82
"ARWA"	"010827188"	"6"	"86YY"	187,	0,	12,	3,	0,	0,	202
"ARWA"	"010827188"	"6"	"87YY"	107,	0,	29,	0,	0,	0,	136
"ARWA"	"010827188"	"6"	"88Q1"	45,	0,	0,	0,	0,	0,	45
"ARWA"	"010827188"	"6"	"88Q2"	38,	0,	0,	1,	0,	0,	39
"ARWA"	"010827188"	"6"	"88Q3"	25,	0,	0,	0,	0,	0,	25
"ARWA"	"010827188"	"6"	"88Q4"	25,	0,	0,	2,	0,	3,	30
"ARWA"	"010827188"	"6"	"89Q1"	25,	0,	0,	1,	0,	0,	26
"ARWA"	"010827188"	"6"	"89Q2"	45,	0,	0,	1,	0,	0,	46
"ARWA"	"010827188"	"6"	"89Q3"	35,	0,	0,	0,	0,	0,	35
"ARWA"	"010827188"	"6"	"89Q4"	30,	0,	0,	0,	0,	0,	30
"A1FA"	"010520643"	"1"	"85YY"	264,	2,	1,	1,	0,	0,	268
"A1FA"	"010520643"	"1"	"86YY"	192,	0,	0,	8,	9,	0,	209
"A1FA"	"010520643"	"1"	"87YY"	170,	0,	0,	2,	0,	0,	172
"A1FA"	"010520643"	"1"	"88Q1"	20,	0,	0,	3,	0,	0,	23
"A1FA"	"010520643"	"1"	"88Q2"	20,	0,	0,	2,	0,	0,	22
"A1FA"	"010520643"	"1"	"88Q3"	27,	0,	0,	3,	0,	0,	30
"A1FA"	"010520643"	"1"	"88Q4"	27,	0,	0,	1,	0,	0,	28
"A1FA"	"010520643"	"7"	"85YY"	169,	2,	0,	10,	0,	0,	181
"A1FA"	"010520643"	"7"	"86YY"	151,	1,	0,	6,	0,	0,	158
"A1FA"	"010520643"	"7"	"87YY"	174,	2,	0,	6,	0,	0,	182
"A1FA"	"010520643"	"7"	"88Q1"	48,	0,	0,	2,	0,	0,	50
"A1FA"	"010520643"	"7"	"88Q2"	35,	0,	0,	0,	0,	0,	35
"A1FA"	"010520643"	"7"	"88Q3"	31,	0,	0,	0,	0,	0,	31
"A1FA"	"010520643"	"7"	"88Q4"	34,	0,	0,	1,	0,	0,	35
"A1FA"	"010520643"	"7"	"89Q1"	3,	0,	0,	0,	0,	0,	3
"A1FA"	"010520643"	"7"	"89Q2"	1,	0,	0,	0,	0,	0,	1
"A7H8"	"001174629"	"2"	"86YY"	9,	0,	0,	0,	0,	0,	9
"A7H8"	"001174629"	"2"	"87YY"	18,	0,	0,	0,	0,	0,	18
"A7H8"	"001174629"	"2"	"88Q3"	23,	0,	0,	0,	0,	0,	23
"A7H8"	"001174629"	"2"	"88Q4"	15,	0,	0,	4,	0,	0,	19
"A7H8"	"001174629"	"2"	"89Q1"	8,	0,	0,	0,	0,	0,	8
"A7H8"	"001174629"	"2"	"89Q2"	8,	0,	0,	0,	0,	0,	8
"A7H8"	"001174629"	"2"	"89Q3"	49,	0,	0,	2,	0,	0,	51
"A7H8"	"001174629"	"2"	"89Q4"	48,	1,	0,	0,	0,	0,	49
"A7H8"	"001174629"	"6"	"85YY"	717,	1,	0,	2,	0,	1,	721
"A7H8"	"001174629"	"6"	"86YY"	526,	0,	6,	2,	0,	0,	534
"A7H8"	"001174629"	"6"	"87YY"	425,	1,	0,	5,	0,	0,	431
"A7H8"	"001174629"	"6"	"88Q1"	102,	1,	0,	1,	0,	0,	104
"A7H8"	"001174629"	"6"	"88Q2"	98,	0,	0,	0,	0,	0,	98

"A7H8","001174629","6","88Q3",	85,	0,	0,	0,	0,	0,	85
"A7H8","001174629","6","88Q4",	64,	1,	1,	0,	0,	0,	66
"A7H8","001174629","6","89Q1",	8,	0,	0,	0,	0,	0,	8
"A7H8","001174629","6","89Q2",	9,	0,	0,	1,	0,	0,	10
"A7H8","001174629","6","89Q3",	47,	0,	0,	0,	0,	0,	47
"A7H8","001174629","6","89Q4",	48,	0,	0,	0,	0,	0,	48
"BB4B","011249243","3","85YY",	63,	0,	9,	0,	0,	0,	72
"BB4B","011249243","3","86YY",	142,	0,	8,	1,	0,	0,	151
"BB4B","011249243","3","87YY",	145,	0,	29,	0,	0,	2,	176
"BB4B","011249243","3","88Q1",	21,	0,	8,	0,	0,	0,	29
"BB4B","011249243","3","88Q2",	34,	0,	10,	0,	0,	0,	44
"BB4B","011249243","3","88Q3",	28,	1,	5,	0,	0,	0,	34
"BB4B","011249243","3","88Q4",	32,	0,	2,	0,	0,	1,	35
"BB4B","011249243","3","89Q1",	14,	0,	0,	1,	0,	1,	16
"BB4B","011249243","3","89Q2",	22,	0,	0,	0,	0,	0,	22
"BB4B","011249243","3","89Q3",	56,	0,	0,	0,	0,	0,	56
"BB4B","011249243","3","89Q4",	22,	1,	6,	0,	0,	0,	29
"BB4B","011249243","7","87YY",	8,	0,	0,	0,	0,	0,	8
"BB4B","011249243","7","88Q1",	1,	0,	0,	0,	0,	0,	1
"BB4B","011249243","7","88Q2",	3,	0,	0,	0,	0,	0,	3
"BB4B","011249243","7","88Q3",	3,	0,	0,	0,	0,	0,	3
"BB4B","011249243","7","88Q4",	9,	0,	0,	0,	0,	0,	9
"BB4B","011249243","7","89Q1",	3,	0,	0,	0,	0,	0,	3
"BB4B","011249243","7","89Q2",	2,	0,	0,	0,	0,	0,	2
"BB4B","011249243","7","89Q3",	4,	0,	0,	0,	0,	0,	4
"BB4B","011249243","7","89Q4",	5,	0,	0,	0,	0,	0,	5
"BDQA","010458797","6","85YY",	42,	33,	0,	0,	0,	1,	76
"BDQA","010458797","6","86YY",	74,	4,	0,	0,	3,	0,	81
"BDQA","010458797","6","87YY",	67,	11,	12,	3,	0,	0,	93
"BDQA","010458797","6","88Q1",	10,	7,	8,	0,	0,	0,	25
"BDQA","010458797","6","88Q2",	8,	5,	3,	0,	1,	0,	17
"BDQA","010458797","6","88Q3",	9,	3,	6,	1,	2,	0,	21
"BDQA","010458797","6","88Q4",	7,	7,	1,	0,	0,	2,	17
"BDQA","010458797","6","89Q1",	10,	10,	3,	0,	8,	0,	31
"BDQA","010458797","6","89Q2",	10,	2,	0,	3,	3,	0,	18
"BDQA","010458797","6","89Q3",	6,	0,	0,	1,	0,	0,	7
"BDQA","010458797","6","89Q4",	10,	1,	0,	0,	17,	0,	28
"BMNA","012727931","3","85YY",	511,	21,	8,	0,	0,	0,	540
"BMNA","012727931","3","86YY",	503,	4,	16,	0,	0,	1,	524
"BMNA","012727931","3","87YY",	168,	6,	176,	1,	0,	0,	351
"BMNA","012727931","3","88Q1",	0,	0,	0,	0,	0,	209,	209
"BMNA","012727931","3","88Q2",	0,	0,	0,	0,	0,	4,	4
"BMNA","012727931","3","88Q4",	0,	0,	0,	0,	0,	31,	31
"BMNA","012727931","3","89Q1",	0,	22,	78,	0,	0,	0,	100
"BMNA","012727931","3","89Q2",	3,	0,	0,	0,	0,	0,	3
"BMNA","012727931","3","89Q3",	46,	0,	0,	0,	0,	0,	46
"BMNA","012727931","3","89Q4",	45,	0,	70,	1,	0,	0,	116
"BMNA","012727931","7","85YY",	556,	1,	0,	1,	0,	10,	568
"BMNA","012727931","7","86YY",	513,	3,	0,	0,	0,	0,	516
"BMNA","012727931","7","87YY",	420,	1,	0,	0,	0,	0,	421
"BMNA","012727931","7","88Q1",	26,	0,	0,	0,	63,	0,	89
"BMNA","012727931","7","88Q2",	0,	0,	0,	0,	2,	0,	2
"BMNA","012727931","7","88Q4",	0,	0,	60,	0,	0,	0,	60
"BMNA","012727931","7","89Q1",	0,	0,	277,	0,	82,	0,	359
"BMNA","012727931","7","89Q2",	5,	0,	0,	0,	173,	0,	178

"BHNA"	"012727931"	"7"	"89Q3"	67,	0,	0,	0,	0,	0,	67
"BHNA"	"012727931"	"7"	"89Q4"	0,	0,	5,	0,	0,	0,	5
"BRSA"	"010349473"	"1"	"85YY"	170,	0,	0,	1,	0,	0,	171
"BRSA"	"010349473"	"1"	"86YY"	255,	1,	15,	1,	0,	0,	272
"BRSA"	"010349473"	"1"	"87YY"	106,	0,	0,	2,	0,	0,	108
"BRSA"	"010349473"	"1"	"88Q1"	42,	0,	0,	0,	0,	0,	42
"BRSA"	"010349473"	"1"	"88Q2"	36,	0,	0,	1,	0,	0,	37
"BRSA"	"010349473"	"1"	"88Q3"	30,	0,	0,	0,	0,	0,	30
"BRSA"	"010349473"	"1"	"88Q4"	30,	0,	0,	0,	0,	0,	30
"BRSA"	"010349473"	"1"	"89Q1"	31,	0,	0,	1,	0,	0,	32
"BRSA"	"010349473"	"1"	"89Q2"	31,	0,	0,	1,	0,	0,	32
"BRSA"	"010349473"	"1"	"89Q3"	27,	0,	0,	1,	0,	0,	28
"BRSA"	"010349473"	"1"	"89Q4"	27,	0,	0,	1,	0,	0,	28
"BRSA"	"010349473"	"6"	"85YY"	94,	0,	8,	0,	0,	0,	102
"BRSA"	"010349473"	"6"	"86YY"	126,	0,	15,	0,	0,	23,	164
"BRSA"	"010349473"	"6"	"87YY"	92,	0,	0,	0,	0,	0,	92
"BRSA"	"010349473"	"6"	"88Q1"	14,	0,	0,	0,	0,	0,	14
"BRSA"	"010349473"	"6"	"88Q2"	4,	0,	0,	0,	0,	1,	5
"BRSA"	"010349473"	"6"	"88Q3"	20,	0,	0,	1,	0,	0,	21
"BRSA"	"010349473"	"6"	"88Q4"	30,	0,	0,	0,	0,	0,	30
"BRSA"	"010349473"	"6"	"89Q1"	31,	0,	0,	0,	0,	0,	31
"BRSA"	"010349473"	"6"	"89Q2"	31,	0,	0,	0,	0,	0,	31
"BRSA"	"010349473"	"6"	"89Q3"	27,	0,	0,	0,	0,	0,	27
"BRSA"	"010349473"	"6"	"89Q4"	26,	0,	0,	0,	0,	0,	26
"BTJA"	"001249917"	"3"	"85YY"	111,	4,	0,	20,	0,	0,	135
"BTJA"	"001249917"	"3"	"86YY"	52,	2,	0,	16,	0,	0,	70
"BTJA"	"001249917"	"3"	"87YY"	129,	1,	5,	9,	0,	0,	144
"BTJA"	"001249917"	"3"	"88Q1"	29,	0,	2,	0,	0,	0,	31
"BTJA"	"001249917"	"3"	"88Q2"	27,	1,	3,	1,	0,	0,	32
"BTJA"	"001249917"	"3"	"88Q3"	29,	0,	7,	0,	0,	0,	36
"BTJA"	"001249917"	"3"	"88Q4"	15,	0,	11,	0,	0,	0,	26
"BTJA"	"001249917"	"3"	"89Q1"	11,	0,	4,	0,	0,	0,	15
"BTJA"	"001249917"	"3"	"89Q2"	8,	0,	0,	0,	0,	0,	8
"BTJA"	"001249917"	"3"	"89Q3"	7,	0,	0,	0,	0,	0,	7
"BTJA"	"001249917"	"3"	"89Q4"	8,	0,	1,	0,	0,	0,	9
"BTJA"	"001249917"	"7"	"85YY"	234,	3,	0,	9,	0,	0,	246
"BTJA"	"001249917"	"7"	"86YY"	193,	9,	0,	6,	0,	0,	208
"BTJA"	"001249917"	"7"	"87YY"	134,	9,	0,	9,	0,	0,	152
"BTJA"	"001249917"	"7"	"88Q1"	28,	0,	0,	3,	0,	0,	31
"BTJA"	"001249917"	"7"	"88Q2"	28,	6,	0,	0,	0,	0,	34
"BTJA"	"001249917"	"7"	"88Q3"	29,	5,	0,	3,	0,	0,	37
"BTJA"	"001249917"	"7"	"88Q4"	27,	0,	0,	1,	0,	0,	28
"BTJA"	"001249917"	"7"	"89Q1"	46,	7,	0,	0,	0,	1,	54
"BTJA"	"001249917"	"7"	"89Q2"	37,	7,	0,	1,	0,	0,	45
"BTJA"	"001249917"	"7"	"89Q3"	26,	4,	0,	1,	0,	0,	31
"BTJA"	"001249917"	"7"	"89Q4"	21,	7,	1,	0,	0,	0,	29
"BUPA"	"010695574"	"2"	"85YY"	414,	3,	0,	43,	0,	0,	460
"BUPA"	"010695574"	"2"	"86YY"	438,	1,	0,	14,	0,	0,	453
"BUPA"	"010695574"	"2"	"87YY"	172,	1,	0,	3,	0,	0,	176
"BUPA"	"010695574"	"2"	"88Q1"	84,	1,	0,	1,	0,	0,	86
"BUPA"	"010695574"	"2"	"88Q2"	73,	3,	0,	3,	0,	0,	79
"BUPA"	"010695574"	"2"	"88Q3"	39,	1,	1,	0,	0,	0,	41
"BUPA"	"010695574"	"2"	"88Q4"	66,	0,	0,	8,	0,	0,	74
"BUPA"	"010695574"	"2"	"89Q1"	30,	0,	0,	3,	0,	0,	33
"BUPA"	"010695574"	"2"	"89Q2"	29,	0,	0,	1,	0,	0,	30

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"BUPA","010695574","2","89Q3",	27,	0,	0,	2,	0,	0,	29
"BUPA","010695574","2","89Q4",	27,	1,	0,	3,	0,	1,	32
"BOQA","008872160","6","85YY",	46,	0,	0,	0,	0,	0,	46
"BOQA","008872160","6","86YY",	42,	0,	0,	4,	0,	0,	46
"BOQA","008872160","6","87YY",	41,	0,	0,	3,	0,	0,	44
"BOQA","008872160","6","88Q1",	10,	0,	0,	0,	0,	0,	10
"BOQA","008872160","6","88Q2",	9,	0,	0,	0,	0,	0,	9
"BOQA","008872160","6","88Q3",	3,	0,	0,	0,	0,	0,	3
"BOQA","008872160","6","88Q4",	2,	0,	0,	0,	0,	0,	2
"BOQA","008872160","6","89Q1",	4,	0,	0,	0,	0,	1,	5
"BOQA","008872160","6","89Q2",	11,	0,	0,	1,	0,	0,	12
"BOQA","008872160","6","89Q3",	6,	0,	0,	0,	0,	0,	6
"BOQA","008872160","6","89Q4",	3,	0,	0,	0,	0,	0,	3
"CHEA","012265321","1","85YY",	125,	8,	4,	2,	0,	0,	139
"CHEA","012265321","1","86YY",	244,	3,	27,	1,	0,	1,	276
"CHEA","012265321","1","87YY",	302,	2,	2,	2,	0,	0,	308
"CHEA","012265321","1","88Q1",	43,	0,	0,	0,	0,	0,	43
"CHEA","012265321","1","88Q2",	47,	0,	0,	0,	0,	0,	47
"CHEA","012265321","1","88Q3",	100,	0,	0,	0,	0,	0,	100
"CHEA","012265321","1","88Q4",	81,	0,	0,	0,	0,	0,	81
"CHEA","012265321","1","89Q1",	51,	0,	0,	2,	0,	0,	53
"CHEA","012265321","1","89Q2",	57,	0,	0,	0,	0,	0,	57
"CHEA","012265321","1","89Q3",	25,	0,	5,	0,	0,	0,	30
"CHEA","012265321","1","89Q4",	14,	0,	0,	0,	0,	0,	14
"CHEA","012265321","7","85YY",	37,	5,	0,	1,	0,	0,	43
"CHEA","012265321","7","86YY",	235,	6,	55,	4,	0,	3,	303
"CHEA","012265321","7","87YY",	142,	8,	19,	2,	0,	0,	171
"CHEA","012265321","7","88Q1",	70,	4,	6,	0,	0,	0,	80
"CHEA","012265321","7","88Q2",	17,	2,	6,	0,	0,	0,	25
"CHEA","012265321","7","88Q3",	3,	2,	9,	0,	0,	0,	14
"CHEA","012265321","7","88Q4",	22,	0,	26,	0,	0,	0,	48
"CHEA","012265321","7","89Q1",	30,	5,	3,	0,	0,	1,	39
"CHEA","012265321","7","89Q2",	195,	8,	7,	0,	0,	0,	210
"CHEA","012265321","7","89Q3",	42,	1,	9,	0,	0,	0,	52
"CHEA","012265321","7","89Q4",	16,	0,	2,	0,	0,	0,	18
"CXN9","007001331","5","85YY",	43,	2,	0,	0,	0,	2,	47
"CXN9","007001331","5","86YY",	54,	0,	0,	1,	0,	0,	55
"CXN9","007001331","5","87YY",	43,	2,	0,	0,	0,	5,	50
"CXN9","007001331","5","88Q1",	3,	0,	0,	0,	0,	0,	3
"CXN9","007001331","5","88Q2",	2,	0,	1,	0,	0,	0,	3
"CXN9","007001331","5","88Q3",	19,	0,	0,	1,	0,	0,	20
"CXN9","007001331","5","88Q4",	24,	0,	2,	1,	0,	0,	27
"CXN9","007001331","5","89Q1",	14,	0,	0,	0,	0,	1,	15
"CXN9","007001331","5","89Q2",	4,	0,	6,	0,	0,	3,	13
"CXN9","007001331","5","89Q3",	9,	0,	0,	0,	0,	0,	9
"CXN9","007001331","7","85YY",	4,	0,	0,	0,	0,	0,	4
"CXN9","007001331","7","86YY",	5,	0,	2,	0,	0,	0,	7
"CXN9","007001331","7","87YY",	6,	1,	9,	1,	0,	0,	17
"CXN9","007001331","7","88Q1",	3,	2,	3,	0,	0,	0,	8
"CXN9","007001331","7","88Q2",	7,	2,	1,	0,	0,	0,	10
"CXN9","007001331","7","88Q3",	11,	2,	0,	0,	0,	0,	13
"CXN9","007001331","7","88Q4",	18,	2,	4,	0,	0,	0,	24
"CXN9","007001331","7","89Q1",	5,	2,	11,	0,	0,	0,	18
"CXN9","007001331","7","89Q2",	5,	2,	21,	0,	0,	0,	28
"CXN9","007001331","7","89Q3",	4,	0,	0,	0,	0,	0,	4

"CXN9","007001331","7","89Q4",	3,	0,	0,	0,	0,	0,	3
"C275","007208989","5","85YY",	6,	0,	6,	1,	0,	0,	13
"C275","007208989","5","86YY",	28,	2,	9,	0,	0,	0,	39
"C275","007208989","5","87YY",	21,	4,	6,	2,	0,	0,	33
"C275","007208989","5","88Q1",	2,	0,	0,	0,	0,	0,	2
"C275","007208989","5","88Q2",	12,	1,	2,	0,	0,	0,	15
"C275","007208989","5","88Q3",	7,	1,	7,	0,	0,	0,	15
"C275","007208989","5","88Q4",	19,	0,	4,	1,	0,	0,	24
"C275","007208989","5","89Q1",	17,	0,	6,	0,	0,	0,	23
"C275","007208989","5","89Q2",	11,	1,	2,	0,	0,	0,	14
"C275","007208989","5","89Q3",	18,	1,	5,	0,	0,	0,	24
"C275","007208989","5","89Q4",	18,	0,	0,	1,	0,	0,	19
"C6V0","007386078","1","85YY",	37,	1,	1,	1,	0,	0,	40
"C6V0","007386078","1","86YY",	32,	5,	0,	0,	0,	0,	37
"C6V0","007386078","1","87YY",	15,	0,	0,	0,	0,	0,	15
"C6V0","007386078","1","88Q1",	3,	0,	0,	0,	0,	0,	3
"C6V0","007386078","1","88Q2",	3,	0,	0,	0,	0,	0,	3
"C6V0","007386078","1","88Q3",	3,	0,	0,	0,	0,	0,	3
"C6V0","007386078","1","88Q4",	3,	0,	0,	0,	0,	0,	3
"C6V0","007386078","1","89Q1",	3,	0,	1,	0,	0,	0,	4
"C6V0","007386078","1","89Q2",	3,	0,	0,	0,	0,	0,	3
"C6V0","007386078","1","89Q3",	12,	3,	0,	0,	0,	0,	15
"C6V0","007386078","1","89Q4",	12,	0,	0,	0,	0,	0,	12
"C6V0","007386078","7","85YY",	115,	1,	0,	0,	0,	3,	119
"C6V0","007386078","7","86YY",	94,	0,	2,	0,	0,	2,	98
"C6V0","007386078","7","87YY",	67,	0,	10,	1,	0,	2,	80
"C6V0","007386078","7","88Q1",	3,	0,	0,	0,	0,	0,	3
"C6V0","007386078","7","88Q2",	3,	0,	0,	0,	0,	0,	3
"C6V0","007386078","7","88Q3",	3,	0,	0,	0,	0,	0,	3
"C6V0","007386078","7","88Q4",	7,	0,	0,	0,	0,	0,	7
"C6V0","007386078","7","89Q1",	7,	0,	0,	0,	0,	0,	7
"C6V0","007386078","7","89Q2",	5,	0,	0,	0,	0,	0,	5
"C6V0","007386078","7","89Q3",	13,	0,	0,	0,	0,	0,	13
"C6V0","007386078","7","89Q4",	15,	3,	0,	0,	0,	0,	18
"C800","007557169","3","85YY",	64,	0,	2,	0,	0,	0,	66
"C800","007557169","3","86YY",	47,	0,	19,	0,	0,	0,	66
"C800","007557169","3","87YY",	93,	1,	17,	0,	0,	0,	111
"C800","007557169","3","88Q1",	11,	0,	0,	0,	0,	1,	12
"C800","007557169","3","88Q2",	10,	0,	0,	0,	0,	0,	10
"C800","007557169","3","88Q3",	10,	0,	0,	1,	0,	0,	11
"C800","007557169","3","88Q4",	10,	0,	1,	0,	0,	1,	12
"C800","007557169","3","89Q1",	20,	0,	0,	1,	0,	0,	21
"C800","007557169","3","89Q2",	21,	0,	0,	0,	0,	0,	21
"C800","007557169","3","89Q3",	27,	0,	0,	0,	0,	0,	27
"C800","007557169","3","89Q4",	26,	0,	0,	0,	0,	0,	26
"C800","007557169","7","85YY",	122,	15,	30,	0,	0,	21,	188
"C800","007557169","7","86YY",	35,	0,	28,	0,	0,	0,	63
"C800","007557169","7","87YY",	103,	0,	50,	2,	0,	0,	155
"C800","007557169","7","88Q1",	19,	2,	6,	2,	0,	0,	29
"C800","007557169","7","88Q2",	13,	2,	17,	0,	0,	0,	32
"C800","007557169","7","88Q3",	12,	0,	22,	0,	0,	0,	34
"C800","007557169","7","88Q4",	12,	0,	0,	0,	0,	0,	12
"C800","007557169","7","89Q1",	12,	0,	0,	3,	0,	0,	15
"C800","007557169","7","89Q2",	15,	1,	0,	0,	0,	0,	16
"C800","007557169","7","89Q3",	19,	0,	1,	0,	0,	0,	20

"C800","007557169","?","89Q4",	26,	2,	0,	2,	0,	0,	30
"C9X2","007579163","3","85YY",	10,	0,	0,	1,	0,	0,	11
"C9X2","007579163","3","86YY",	46,	0,	0,	1,	0,	0,	47
"C9X2","007579163","3","87YY",	165,	1,	0,	4,	0,	0,	170
"C9X2","007579163","3","88Q1",	15,	0,	0,	0,	0,	0,	15
"C9X2","007579163","3","88Q2",	31,	0,	0,	0,	0,	0,	31
"C9X2","007579163","3","88Q3",	16,	0,	0,	1,	0,	0,	17
"C9X2","007579163","3","88Q4",	14,	0,	0,	0,	0,	0,	14
"C9X2","007579163","3","89Q1",	26,	0,	0,	0,	0,	0,	26
"C9X2","007579163","3","89Q2",	29,	0,	0,	0,	0,	0,	29
"C9X2","007579163","3","89Q3",	27,	0,	0,	0,	0,	0,	27
"C9X2","007579163","3","89Q4",	28,	0,	0,	0,	0,	0,	28
"C9X2","007579163","6","85YY",	21,	0,	0,	5,	0,	0,	26
"C9X2","007579163","6","86YY",	96,	0,	0,	2,	0,	0,	98
"C9X2","007579163","6","87YY",	97,	0,	0,	0,	0,	0,	97
"C9X2","007579163","6","88Q1",	39,	0,	0,	0,	0,	0,	39
"C9X2","007579163","6","88Q2",	40,	0,	0,	0,	0,	0,	40
"C9X2","007579163","6","88Q3",	18,	0,	0,	0,	0,	0,	18
"C9X2","007579163","6","88Q4",	7,	0,	0,	0,	0,	0,	7
"C9X2","007579163","6","89Q1",	13,	0,	0,	0,	0,	0,	13
"C9X2","007579163","6","89Q2",	31,	1,	0,	0,	0,	0,	32
"C9X2","007579163","6","89Q3",	26,	0,	0,	0,	0,	0,	26
"C9X2","007579163","6","89Q4",	29,	1,	0,	2,	0,	1,	33
"DLNA","001338249","2","88Q3",	4,	1,	0,	0,	0,	0,	5
"DLNA","001338249","2","88Q4",	2,	1,	0,	0,	0,	0,	3
"DLNA","001338249","2","89Q3",	1,	0,	0,	0,	0,	0,	1
"DLNA","001338249","5","85YY",	21,	6,	6,	0,	0,	8,	41
"DLNA","001338249","5","86YY",	0,	1,	0,	0,	0,	0,	1
"DLNA","001338249","5","87YY",	2,	0,	0,	0,	0,	0,	2
"DLNA","001338249","5","88Q2",	1,	0,	0,	0,	0,	0,	1
"DLNA","001338249","5","89Q1",	1,	0,	0,	0,	0,	0,	1
"DLNA","001338249","5","89Q2",	1,	1,	0,	0,	0,	0,	2
"DLNA","001338249","5","89Q3",	3,	0,	0,	0,	0,	1,	4
"DLNA","001338249","5","89Q4",	3,	0,	0,	0,	0,	3,	6
"DLNA","001338249","6","85YY",	21,	3,	6,	0,	0,	0,	30
"DLNA","001338249","6","86YY",	2,	0,	0,	0,	0,	0,	2
"DLNA","001338249","6","87YY",	3,	0,	0,	0,	0,	1,	4
"DLNA","001338249","6","88Q1",	0,	1,	0,	0,	0,	0,	1
"DLNA","001338249","6","89Q2",	0,	0,	0,	0,	0,	1,	1
"DTPA","001069969","1","85YY",	75,	0,	3,	1,	0,	0,	79
"DTPA","001069969","1","86YY",	120,	1,	0,	3,	0,	0,	124
"DTPA","001069969","1","87YY",	11,	0,	0,	1,	0,	0,	12
"DTPA","001069969","1","88Q1",	2,	0,	0,	0,	0,	0,	2
"DTPA","001069969","1","88Q2",	2,	0,	0,	0,	0,	0,	2
"DTPA","001069969","1","88Q3",	20,	0,	0,	1,	0,	0,	21
"DTPA","001069969","1","88Q4",	20,	0,	0,	0,	0,	0,	20
"DTPA","001069969","1","89Q1",	5,	0,	0,	0,	0,	0,	5
"DTPA","001069969","1","89Q2",	5,	0,	0,	0,	0,	1,	6
"DXHA","001920327","1","85YY",	140,	2,	0,	2,	0,	0,	144
"DXHA","001920327","1","86YY",	96,	3,	0,	2,	0,	0,	101
"DXHA","001920327","1","87YY",	161,	3,	0,	6,	0,	0,	170
"DXHA","001920327","1","88Q1",	12,	0,	0,	0,	0,	0,	12
"DXHA","001920327","1","88Q2",	12,	0,	0,	0,	0,	0,	12
"DXHA","001920327","1","88Q3",	16,	1,	0,	1,	0,	0,	18
"DXHA","001920327","1","88Q4",	16,	0,	0,	0,	0,	0,	16

"DXHA","001920327","1","89Q1",	15,	0,	0,	0,	0,	0,	15
"DXHA","001920327","1","89Q2",	16,	0,	0,	0,	0,	0,	16
"DXHA","001920327","1","89Q3",	11,	1,	0,	1,	0,	0,	13
"DXHA","001920327","1","89Q4",	11,	1,	0,	1,	0,	4,	17
"DXHA","001920327","7","85YY",	35,	3,	0,	1,	0,	0,	39
"DXHA","001920327","7","86YY",	20,	0,	1,	0,	0,	1,	22
"DXHA","001920327","7","87YY",	156,	16,	0,	6,	0,	4,	182
"DXHA","001920327","7","88Q1",	22,	2,	0,	0,	0,	0,	24
"DXHA","001920327","7","88Q2",	17,	3,	0,	0,	0,	0,	20
"DXHA","001920327","7","88Q3",	17,	1,	0,	0,	0,	0,	18
"DXHA","001920327","7","88Q4",	10,	1,	0,	0,	0,	0,	11
"DXHA","001920327","7","89Q1",	32,	1,	0,	2,	0,	0,	35
"DXHA","001920327","7","89Q2",	34,	0,	0,	1,	0,	1,	36
"DXHA","001920327","7","89Q3",	11,	2,	0,	2,	0,	0,	15
"DXHA","001920327","7","89Q4",	42,	3,	0,	3,	0,	0,	48
"DY09","000431990","3","85YY",	90,	1,	0,	4,	0,	2,	97
"DY09","000431990","3","86YY",	103,	3,	0,	0,	0,	0,	106
"DY09","000431990","3","87YY",	111,	3,	0,	1,	0,	0,	115
"DY09","000431990","3","88Q1",	3,	0,	0,	0,	0,	0,	3
"DY09","000431990","3","88Q2",	3,	0,	0,	0,	0,	0,	3
"DY09","000431990","3","88Q3",	8,	0,	0,	0,	0,	0,	8
"DY09","000431990","3","88Q4",	8,	0,	0,	0,	0,	0,	8
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"DY09","000431990","3","89Q2",	3,	0,	0,	0,	0,	0,	3
"DY09","000431990","3","89Q3",	4,	0,	0,	0,	0,	0,	4
"DY09","000431990","3","89Q4",	4,	0,	0,	0,	0,	0,	4
"DY09","000431990","6","85YY",	154,	0,	0,	4,	0,	0,	158
"DY09","000431990","6","86YY",	108,	0,	0,	2,	0,	0,	110
"DY09","000431990","6","87YY",	96,	0,	0,	3,	0,	0,	99
"DY09","000431990","6","88Q1",	4,	0,	0,	0,	0,	1,	5
"DY09","000431990","6","88Q2",	3,	0,	0,	0,	0,	0,	3
"DY09","000431990","6","88Q3",	8,	0,	0,	0,	0,	0,	8
"DY09","000431990","6","88Q4",	8,	0,	0,	0,	0,	0,	8
"DY09","000431990","6","89Q1",	3,	0,	0,	0,	0,	0,	3
"DY09","000431990","6","89Q2",	4,	0,	0,	0,	0,	0,	4
"DY09","000431990","6","89Q3",	4,	0,	0,	0,	0,	0,	4
"DY09","000431990","6","89Q4",	4,	0,	0,	0,	0,	0,	4
"DY09","000431990","7","85YY",	0,	0,	0,	1,	0,	0,	1
"D8D8","008874369","2","85YY",	11,	0,	0,	1,	0,	0,	12
"D8D8","008874369","2","86YY",	72,	0,	0,	0,	0,	0,	72
"D8D8","008874369","2","87YY",	101,	0,	0,	2,	0,	0,	103
"D8D8","008874369","2","88Q1",	21,	0,	0,	0,	0,	0,	21
"D8D8","008874369","2","88Q2",	22,	1,	0,	2,	0,	0,	25
"D8D8","008874369","2","88Q3",	8,	0,	0,	0,	0,	0,	8
"D8D8","008874369","2","88Q4",	17,	0,	0,	0,	0,	0,	17
"D8D8","008874369","2","89Q1",	24,	0,	0,	0,	0,	0,	24
"D8D8","008874369","2","89Q2",	12,	0,	0,	0,	0,	0,	12
"D8D8","008874369","2","89Q3",	5,	0,	0,	0,	0,	0,	5
"D8D8","008874369","2","89Q4",	9,	0,	0,	0,	0,	0,	9
"D8D8","008874369","6","85YY",	21,	0,	0,	0,	0,	0,	21
"D8D8","008874369","6","86YY",	79,	0,	0,	2,	0,	2,	83
"D8D8","008874369","6","87YY",	10,	0,	0,	0,	0,	2,	12
"D8D8","008874369","6","88Q1",	6,	0,	0,	0,	0,	1,	7
"D8D8","008874369","6","88Q2",	30,	0,	0,	0,	0,	2,	32
"D8D8","008874369","6","88Q3",	9,	0,	0,	0,	0,	0,	9

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"D8D8","008874369","6","88Q4",	26,	0,	0,	1,	0,	0,	27
"D8D8","008874369","6","89Q1",	11,	0,	0,	1,	0,	0,	12
"D8D8","008874369","6","89Q2",	10,	0,	0,	0,	0,	0,	10
"D8D8","008874369","6","89Q3",	4,	0,	0,	0,	0,	0,	4
"D8D8","008874369","6","89Q4",	3,	0,	0,	0,	0,	0,	3
"D8H3","008876729","6","85YY",	254,	0,	1,	2,	0,	0,	257
"D8H3","008876729","6","86YY",	144,	3,	0,	2,	0,	0,	149
"D8H3","008876729","6","87YY",	137,	0,	2,	0,	0,	0,	139
"D8H3","008876729","6","88Q1",	13,	1,	0,	0,	0,	0,	14
"D8H3","008876729","6","88Q2",	14,	0,	0,	1,	0,	0,	15
"D8H3","008876729","6","88Q3",	44,	0,	0,	0,	0,	0,	44
"D8H3","008876729","6","88Q4",	42,	0,	0,	1,	0,	0,	43
"D8H3","008876729","6","89Q1",	38,	0,	0,	0,	0,	0,	38
"D8H3","008876729","6","89Q2",	48,	0,	10,	0,	0,	0,	58
"D8H3","008876729","6","89Q3",	49,	0,	0,	0,	0,	0,	49
"D8H3","008876729","6","89Q4",	48,	0,	1,	1,	0,	0,	50
"EEQA","010639054","6","85YY",	666,	0,	79,	11,	0,	10,	766
"EEQA","010639054","6","86YY",	409,	1,	71,	5,	0,	0,	486
"EEQA","010639054","6","87YY",	494,	0,	42,	8,	0,	0,	544
"EEQA","010639054","6","88Q1",	124,	0,	4,	2,	0,	0,	130
"EEQA","010639054","6","88Q2",	121,	0,	0,	3,	0,	1,	125
"EEQA","010639054","6","88Q3",	171,	1,	0,	2,	0,	0,	174
"EEQA","010639054","6","88Q4",	121,	3,	16,	3,	0,	4,	147
"EEQA","010639054","6","89Q1",	101,	2,	3,	6,	0,	3,	115
"EEQA","010639054","6","89Q2",	100,	1,	31,	1,	0,	1,	134
"EEQA","010639054","6","89Q3",	100,	0,	0,	4,	0,	0,	104
"EEQA","010639054","6","89Q4",	108,	4,	4,	0,	0,	0,	116
"ENK7","009298968","5","85YY",	106,	0,	3,	0,	0,	0,	109
"ENK7","009298968","5","86YY",	132,	2,	3,	2,	0,	0,	139
"ENK7","009298968","5","87YY",	71,	2,	2,	1,	0,	0,	76
"ENK7","009298968","5","88Q1",	15,	0,	0,	2,	0,	0,	17
"ENK7","009298968","5","88Q2",	15,	0,	0,	0,	0,	0,	15
"ENK7","009298968","5","88Q4",	1,	0,	0,	0,	0,	0,	1
"ENK7","009298968","5","89Q1",	3,	0,	0,	0,	0,	0,	3
"ENK7","009298968","5","89Q2",	1,	0,	0,	0,	0,	0,	1
"ENK7","009298968","5","85YY",	15,	0,	3,	1,	0,	2,	21
"ENK7","009298968","5","87YY",	21,	0,	1,	0,	0,	0,	22
"ENK7","009298968","5","88Q1",	5,	0,	0,	0,	0,	0,	5
"ENK7","009298968","5","88Q2",	5,	0,	1,	0,	0,	0,	6
"ENK7","009298968","5","88Q3",	0,	0,	0,	0,	0,	1,	1
"ENK7","009298968","5","89Q2",	1,	0,	0,	0,	0,	0,	1
"ETTA","010749906","3","85YY",	25,	0,	7,	0,	0,	0,	32
"ETTA","010749906","3","86YY",	66,	0,	3,	0,	0,	0,	69
"ETTA","010749906","3","87YY",	37,	0,	0,	4,	0,	0,	41
"ETTA","010749906","3","88Q1",	5,	0,	0,	0,	0,	0,	5
"ETTA","010749906","3","88Q2",	2,	0,	0,	0,	0,	0,	2
"ETTA","010749906","3","88Q3",	15,	0,	0,	0,	0,	0,	15
"ETTA","010749906","3","88Q4",	14,	0,	0,	0,	0,	0,	14
"ETTA","010749906","3","89Q1",	5,	0,	0,	0,	0,	0,	5
"ETTA","010749906","3","89Q2",	5,	0,	0,	0,	0,	0,	5
"ETTA","010749906","3","89Q3",	4,	0,	0,	0,	0,	0,	4
"ETTA","010749906","3","89Q4",	4,	0,	0,	0,	0,	0,	4
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"E2L9","009673715","6","89Q3",	3,	1,	0,	0,	0,	0,	4
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"FYWA","011644963","5","88Q2",	35,	0,	0,	4,	0,	0,	39
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"FYWA","011644963","6","86YY",	55,	0,	0,	9,	0,	3,	67
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"GTNA","006514532","1","87YY",	5,	1,	0,	0,	0,	1,	7
"GTNA","006514532","1","88Q1",	1,	0,	0,	0,	0,	0,	1
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"GTNA","006514532","6","86YY",	19,	0,	0,	0,	0,	0,	19
"GTNA","006514532","6","87YY",	8,	0,	0,	0,	0,	0,	8
"GTNA","006514532","6","88Q1",	3,	0,	0,	0,	0,	0,	3
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"GTNA","006514532","6","88Q3",	1,	0,	0,	0,	0,	2,	3
"GTNA","006514532","6","88Q4",	5,	0,	0,	0,	0,	2,	7
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"GXB9","004081514","5","86YY",	41,	0,	0,	0,	0,	0,	41
"GXB9","004081514","5","87YY",	117,	0,	0,	2,	0,	0,	119
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"GXB9","004081514","5","88Q4",	30,	0,	9,	0,	0,	0,	39
"GXB9","004081514","5","89Q1",	39,	0,	0,	2,	0,	0,	41
"GXB9","004081514","5","89Q2",	38,	0,	0,	0,	0,	0,	38
"GXB9","004081514","5","89Q3",	20,	0,	0,	0,	0,	0,	20
"GXB9","004081514","5","89Q4",	15,	0,	0,	0,	0,	0,	15
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"GYHA","007178538","5","86YY",	41,	26,	0,	6,	0,	0,	73
"GYHA","007178538","5","87YY",	127,	64,	0,	13,	0,	0,	204
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"GYHA","007178538","5","88Q4",	17,	10,	0,	0,	0,	0,	27
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"GYHA","007178538","5","89Q3",	30,	8,	0,	0,	0,	0,	38
"GYHA","007178538","5","89Q4",	30,	3,	0,	0,	0,	0,	33
"GYHA","007178538","6","85YY",	28,	7,	2,	2,	0,	0,	39
"GYHA","007178538","6","86YY",	21,	0,	0,	2,	0,	0,	23
"GYHA","007178538","6","87YY",	27,	6,	0,	3,	0,	0,	36
"GYHA","007178538","6","88Q1",	0,	5,	0,	0,	0,	0,	5
"GYHA","007178538","6","88Q2",	5,	1,	1,	0,	0,	0,	7
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"G1HO","004351458","2","86YY",	184,	46,	0,	5,	0,	2,	237
"G1HO","004351458","2","87YY",	53,	44,	0,	3,	5,	2,	107
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"G1HO","004351458","2","88Q2",	11,	11,	0,	0,	0,	0,	22
"G1HO","004351458","2","88Q3",	11,	5,	0,	1,	0,	0,	17
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"G1HO","004351458","2","89Q3",	9,	3,	0,	0,	0,	0,	12
"G1HO","004351458","2","89Q4",	14,	4,	0,	1,	0,	0,	19
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"HHYA","011560788","3","85YY",	22,	1,	0,	1,	0,	0,	24
"HHYA","011560788","3","86YY",	33,	0,	0,	0,	2,	0,	35
"HHYA","011560788","3","87YY",	17,	0,	0,	0,	0,	0,	17
"HHYA","011560788","3","88Q1",	9,	0,	0,	0,	0,	0,	9
"HHYA","011560788","3","88Q2",	6,	1,	0,	0,	0,	0,	7
"HHYA","011560788","3","88Q3",	9,	3,	0,	0,	0,	0,	12
"HHYA","011560788","3","88Q4",	8,	0,	0,	0,	0,	0,	8
"HHYA","011560788","3","89Q1",	12,	0,	0,	0,	0,	0,	12
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"HHYA","011560788","3","89Q3",	16,	0,	0,	0,	0,	0,	16
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"HHYA","011560788","7","85YY",	16,	1,	0,	0,	0,	0,	17
"HHYA","011560788","7","86YY",	33,	0,	0,	1,	0,	0,	34
"HHYA","011560788","7","87YY",	38,	1,	0,	1,	0,	0,	40
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"HJCA","001387978","5","88Q3",	75,	0,	0,	6,	0,	0,	81
"HJCA","001387978","5","88Q4",	75,	0,	0,	7,	0,	0,	82
"HJCA","001387978","5","89Q1",	51,	0,	0,	3,	0,	0,	54
"HJCA","001387978","5","89Q2",	51,	1,	0,	9,	0,	1,	62
"HJCA","001387978","5","89Q3",	135,	1,	0,	11,	0,	0,	147
"HJCA","001387978","5","89Q4",	134,	0,	0,	6,	0,	0,	140
"HJCA","001387978","6","85YY",	122,	0,	0,	0,	0,	7,	129
"HJCA","001387978","6","86YY",	147,	0,	1,	12,	0,	0,	160
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"HJCA","001387978","6","88Q2",	35,	0,	0,	0,	0,	0,	35
"HJCA","001387978","6","88Q3",	76,	1,	0,	0,	0,	0,	77
"HJCA","001387978","6","88Q4",	77,	1,	0,	3,	0,	0,	81
"HJCA","001387978","6","89Q1",	50,	1,	0,	1,	0,	0,	52
"HJCA","001387978","6","89Q2",	51,	2,	0,	0,	0,	0,	53
"HJCA","001387978","6","89Q3",	90,	0,	0,	3,	0,	0,	93
"HJCA","001387978","6","89Q4",	121,	0,	0,	5,	0,	9,	135
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"HT5A","010402205","3","89Q4",	20,	0,	0,	1,	0,	0,	21
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"HT5A","010402205","6","86YY",	37,	0,	1,	1,	0,	0,	39
"HT5A","010402205","6","87YY",	34,	1,	0,	1,	0,	0,	36
"HT5A","010402205","6","88Q1",	9,	0,	0,	0,	0,	0,	9
"HT5A","010402205","6","88Q2",	8,	0,	0,	0,	0,	0,	8
"HT5A","010402205","6","88Q3",	11,	0,	0,	0,	0,	0,	11
"HT5A","010402205","6","88Q4",	18,	1,	1,	0,	0,	0,	20
"HT5A","010402205","6","89Q1",	8,	0,	0,	0,	0,	0,	8
"HT5A","010402205","6","89Q2",	1,	0,	4,	0,	0,	12,	17
"HT5A","010402205","6","89Q3",	10,	1,	4,	0,	0,	1,	16
"HT5A","010402205","6","89Q4",	11,	0,	12,	0,	0,	0,	23
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"JE0A","008847571","2","86YY",	229,	1,	0,	1,	0,	0,	231
"JE0A","008847571","2","87YY",	164,	0,	19,	2,	0,	0,	185
"JE0A","008847571","2","88Q1",	54,	0,	0,	0,	0,	2,	56
"JE0A","008847571","2","88Q2",	61,	0,	0,	3,	0,	0,	64
"JE0A","008847571","2","88Q3",	85,	0,	0,	5,	0,	0,	90
"JE0A","008847571","2","88Q4",	72,	0,	0,	1,	2,	0,	75
"JE0A","008847571","2","89Q1",	46,	0,	0,	0,	0,	0,	46
"JE0A","008847571","2","89Q2",	46,	0,	0,	0,	0,	0,	46
"JE0A","008847571","2","89Q3",	36,	0,	6,	0,	0,	0,	42
"JE0A","008847571","2","89Q4",	36,	0,	0,	0,	0,	0,	36
"JE0A","008847571","6","86YY",	21,	0,	0,	0,	0,	0,	21
"JE0A","008847571","6","87YY",	5,	0,	0,	0,	0,	0,	5
"JE0A","008847571","6","88Q1",	5,	0,	0,	0,	0,	0,	5
"JE0A","008847571","6","88Q2",	19,	0,	0,	0,	0,	0,	19
"JE0A","008847571","6","88Q3",	7,	0,	0,	0,	0,	0,	7
"JE0A","008847571","6","88Q4",	43,	0,	0,	0,	0,	0,	43
"JE0A","008847571","6","89Q1",	14,	0,	0,	0,	0,	0,	14
"JE0A","008847571","6","89Q2",	21,	0,	0,	0,	0,	0,	21
"JE0A","008847571","6","89Q3",	6,	0,	0,	0,	0,	0,	6
"JE0A","008847571","6","89Q4",	22,	0,	0,	0,	0,	0,	22
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"JL6A","011758691","1","86YY",	61,	0,	38,	0,	0,	0,	99
"JL6A","011758691","1","87YY",	70,	0,	10,	1,	0,	0,	81
"JL6A","011758691","1","88Q1",	25,	0,	11,	1,	0,	0,	37
"JL6A","011758691","1","88Q2",	18,	0,	5,	2,	0,	0,	25
"JL6A","011758691","1","88Q3",	10,	0,	1,	0,	0,	0,	11
"JL6A","011758691","1","88Q4",	9,	0,	20,	1,	0,	0,	30
"JL6A","011758691","1","89Q1",	20,	0,	7,	0,	0,	0,	27
"JL6A","011758691","1","89Q2",	15,	0,	15,	0,	0,	0,	30
"JL6A","011758691","1","89Q3",	10,	0,	6,	0,	0,	0,	16
"JL6A","011758691","1","89Q4",	10,	0,	6,	0,	0,	8,	24
"JL6A","011758691","7","85YY",	67,	2,	12,	0,	0,	0,	81
"JL6A","011758691","7","86YY",	7,	0,	17,	2,	0,	0,	26
"JL6A","011758691","7","87YY",	87,	0,	53,	3,	0,	0,	143
"JL6A","011758691","7","88Q1",	26,	0,	4,	3,	0,	0,	33
"JL6A","011758691","7","88Q2",	24,	0,	3,	0,	0,	0,	27

"JL6A","011758691","7","88Q3",	15,	0,	11,	1,	0,	0,	27
"JL6A","011758691","7","88Q4",	11,	0,	19,	3,	0,	0,	33
"JL6A","011758691","7","89Q1",	6,	0,	20,	1,	0,	0,	27
"JL6A","011758691","7","89Q2",	11,	0,	16,	0,	0,	0,	27
"JL6A","011758691","7","89Q3",	15,	0,	9,	0,	0,	0,	24
"JL6A","011758691","7","89Q4",	18,	0,	0,	0,	0,	0,	18
"JM3A","009448258","1","85YY",	181,	0,	26,	0,	0,	0,	207
"JM3A","009448258","1","86YY",	102,	1,	1,	3,	0,	0,	107
"JM3A","009448258","1","87YY",	226,	0,	0,	3,	0,	0,	229
"JM3A","009448258","1","88Q1",	32,	0,	0,	0,	0,	0,	32
"JM3A","009448258","1","88Q2",	32,	0,	0,	0,	0,	0,	32
"JM3A","009448258","1","88Q3",	30,	0,	0,	1,	0,	0,	31
"JM3A","009448258","1","88Q4",	30,	0,	0,	1,	0,	0,	31
"JM3A","009448258","1","89Q1",	32,	0,	0,	2,	0,	0,	34
"JM3A","009448258","1","89Q2",	32,	0,	0,	0,	0,	0,	32
"JM3A","009448258","1","89Q3",	33,	0,	0,	0,	0,	0,	33
"JM3A","009448258","1","89Q4",	32,	0,	0,	0,	0,	0,	32
"JM3A","009448258","7","85YY",	37,	2,	1,	0,	0,	0,	40
"JM3A","009448258","7","86YY",	47,	0,	0,	1,	0,	0,	48
"JM3A","009448258","7","87YY",	97,	0,	0,	2,	0,	0,	99
"JM3A","009448258","7","88Q1",	14,	0,	0,	1,	0,	0,	15
"JM3A","009448258","7","88Q2",	25,	0,	0,	0,	0,	17,	42
"JM3A","009448258","7","88Q3",	21,	0,	2,	2,	0,	0,	25
"JM3A","009448258","7","88Q4",	17,	0,	13,	1,	0,	0,	31
"JM3A","009448258","7","89Q1",	46,	0,	13,	2,	0,	0,	61
"JM3A","009448258","7","89Q2",	43,	0,	0,	0,	0,	0,	43
"JM3A","009448258","7","89Q3",	44,	0,	0,	0,	0,	0,	44
"JM3A","009448258","7","89Q4",	32,	0,	0,	0,	0,	1,	33
"JQVA","001507344","2","85YY",	253,	1,	14,	33,	0,	0,	301
"JQVA","001507344","2","86YY",	156,	0,	23,	12,	0,	0,	191
"JQVA","001507344","2","87YY",	136,	5,	10,	11,	0,	0,	162
"JQVA","001507344","2","88Q1",	26,	1,	0,	2,	0,	0,	29
"JQVA","001507344","2","88Q2",	45,	0,	0,	0,	0,	0,	45
"JQVA","001507344","2","88Q3",	49,	0,	0,	2,	0,	0,	51
"JQVA","001507344","2","88Q4",	27,	0,	0,	1,	0,	0,	28
"JQVA","001507344","2","89Q1",	49,	0,	0,	1,	0,	0,	50
"JQVA","001507344","2","89Q2",	31,	1,	8,	2,	0,	10,	52
"JQVA","001507344","2","89Q3",	42,	2,	0,	2,	0,	0,	46
"JQVA","001507344","2","89Q4",	54,	0,	0,	2,	0,	0,	56
"JQVA","001507344","6","85YY",	59,	0,	0,	1,	0,	0,	60
"JQVA","001507344","6","86YY",	106,	1,	0,	1,	0,	9,	117
"JQVA","001507344","6","87YY",	186,	1,	70,	2,	0,	1,	260
"JQVA","001507344","6","88Q1",	27,	0,	0,	1,	0,	0,	28
"JQVA","001507344","6","88Q2",	36,	0,	25,	0,	0,	0,	61
"JQVA","001507344","6","88Q3",	26,	0,	8,	1,	0,	0,	35
"JQVA","001507344","6","88Q4",	25,	0,	4,	1,	0,	0,	30
"JQVA","001507344","6","89Q1",	20,	0,	2,	1,	0,	0,	23
"JQVA","001507344","6","89Q2",	30,	0,	0,	3,	0,	0,	33
"JQVA","001507344","6","89Q3",	17,	0,	0,	0,	0,	0,	17
"JQVA","001507344","6","89Q4",	27,	0,	0,	0,	0,	0,	27
"JSNA","001520939","1","85YY",	58,	0,	0,	1,	0,	0,	59
"JSNA","001520939","1","86YY",	31,	1,	0,	0,	0,	0,	32
"JSNA","001520939","1","87YY",	50,	0,	0,	2,	0,	0,	52
"JSNA","001520939","1","88Q1",	14,	0,	0,	1,	0,	0,	15
"JSNA","001520939","1","88Q2",	14,	0,	0,	0,	0,	0,	14

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"JSNA","001520939","1","88Q3",	21,	0,	0,	0,	0,	0,	21
"JSNA","001520939","1","88Q4",	20,	0,	0,	0,	0,	0,	20
"JSNA","001520939","1","89Q1",	24,	0,	0,	0,	0,	0,	24
"JSNA","001520939","1","89Q2",	15,	0,	0,	0,	0,	0,	15
"JSNA","001520939","1","89Q3",	14,	0,	0,	0,	0,	0,	14
"JSNA","001520939","1","89Q4",	14,	0,	0,	0,	0,	0,	14
"JSNA","001520939","6","85YY",	35,	0,	0,	0,	0,	0,	35
"JSNA","001520939","6","86YY",	77,	0,	0,	1,	0,	0,	78
"JSNA","001520939","6","87YY",	50,	0,	0,	0,	0,	0,	50
"JSNA","001520939","6","88Q1",	13,	0,	18,	0,	0,	0,	31
"JSNA","001520939","6","88Q2",	13,	0,	0,	0,	0,	0,	13
"JSNA","001520939","6","88Q3",	21,	0,	0,	0,	0,	0,	21
"JSNA","001520939","6","88Q4",	20,	0,	0,	0,	0,	0,	20
"JSNA","001520939","6","89Q1",	35,	0,	0,	0,	0,	0,	35
"JSNA","001520939","6","89Q2",	35,	0,	0,	1,	0,	0,	36
"JSNA","001520939","6","89Q3",	31,	0,	0,	0,	0,	0,	31
"JSNA","001520939","6","89Q4",	32,	0,	0,	1,	0,	0,	33
"KFQA","010064744","5","86YY",	1,	0,	0,	0,	0,	0,	1
"KFQA","010064744","5","87YY",	1,	0,	0,	0,	0,	0,	1
"KFQA","010064744","5","88Q3",	1,	0,	0,	0,	0,	0,	1
"KFQA","010064744","5","89Q1",	2,	0,	0,	0,	0,	0,	2
"KN7A","010654756","1","85YY",	60,	0,	59,	4,	0,	0,	123
"KN7A","010654756","1","86YY",	101,	0,	68,	9,	0,	1,	179
"KN7A","010654756","1","87YY",	183,	0,	61,	31,	0,	13,	288
"KN7A","010654756","1","88Q1",	49,	0,	4,	6,	0,	2,	61
"KN7A","010654756","1","88Q2",	34,	0,	0,	8,	0,	0,	42
"KN7A","010654756","1","88Q3",	47,	0,	9,	12,	0,	0,	68
"KN7A","010654756","1","88Q4",	47,	0,	23,	5,	0,	4,	79
"KN7A","010654756","1","89Q1",	50,	2,	23,	1,	0,	2,	78
"KN7A","010654756","1","89Q2",	44,	0,	20,	3,	0,	2,	69
"KN7A","010654756","1","89Q3",	36,	0,	20,	0,	0,	0,	56
"KN7A","010654756","1","89Q4",	38,	0,	5,	16,	0,	3,	62
"KN7A","010654756","7","85YY",	55,	1,	68,	33,	0,	0,	157
"KN7A","010654756","7","86YY",	83,	1,	122,	15,	1,	0,	222
"KN7A","010654756","7","87YY",	83,	1,	135,	32,	0,	0,	251
"KN7A","010654756","7","88Q1",	36,	1,	6,	0,	0,	43,	86
"KN7A","010654756","7","88Q2",	33,	0,	0,	1,	0,	9,	43
"KN7A","010654756","7","88Q3",	40,	0,	0,	3,	0,	0,	43
"KN7A","010654756","7","88Q4",	35,	2,	7,	1,	0,	0,	45
"KN7A","010654756","7","89Q1",	36,	0,	15,	4,	0,	0,	55
"KN7A","010654756","7","89Q2",	37,	0,	23,	6,	0,	28,	94
"KN7A","010654756","7","89Q3",	40,	0,	3,	2,	0,	15,	60
"KN7A","010654756","7","89Q4",	40,	0,	7,	2,	0,	0,	49
"KSB6","001341861","3","85YY",	265,	13,	1,	1,	0,	0,	280
"KSB6","001341861","3","86YY",	160,	7,	0,	0,	0,	0,	167
"KSB6","001341861","3","87YY",	149,	5,	1,	0,	0,	0,	155
"KSB6","001341861","3","88Q1",	26,	2,	2,	0,	0,	0,	30
"KSB6","001341861","3","88Q2",	27,	3,	0,	0,	0,	0,	30
"KSB6","001341861","3","88Q3",	49,	0,	1,	0,	0,	0,	50
"KSB6","001341861","3","88Q4",	54,	0,	1,	0,	0,	0,	55
"KSB6","001341861","3","89Q1",	73,	1,	2,	1,	0,	1,	78
"KSB6","001341861","3","89Q2",	80,	0,	0,	0,	0,	0,	80
"KSB6","001341861","3","89Q3",	57,	0,	0,	0,	0,	0,	57
"KSB6","001341861","3","89Q4",	50,	0,	0,	0,	0,	0,	50
"KSB6","001341861","7","85YY",	0,	0,	0,	0,	0,	1,	1

"KSB6","001341861","7","86YY",	10,	0,	0,	0,	0,	0,	10
"KSB6","001341861","7","87YY",	46,	1,	0,	0,	0,	0,	47
"KSB6","001341861","7","88Q1",	24,	1,	0,	0,	0,	0,	25
"KSB6","001341861","7","88Q2",	25,	0,	0,	0,	0,	0,	25
"KSB6","001341861","7","88Q3",	55,	1,	0,	1,	0,	0,	57
"KSB6","001341861","7","88Q4",	52,	0,	0,	0,	0,	43,	95
"KSB6","001341861","7","89Q1",	53,	1,	3,	1,	0,	0,	58
"KSB6","001341861","7","89Q2",	105,	0,	0,	0,	0,	0,	105
"KSB6","001341861","7","89Q3",	54,	1,	0,	0,	0,	0,	55
"KSB6","001341861","7","89Q4",	50,	3,	0,	2,	0,	0,	55
"KOY7","005162808","2","85YY",	46,	0,	12,	1,	0,	0,	59
"KOY7","005162808","2","86YY",	44,	0,	24,	2,	0,	0,	70
"KOY7","005162808","2","87YY",	105,	0,	0,	1,	0,	0,	106
"KOY7","005162808","2","88Q1",	22,	0,	0,	0,	0,	0,	22
"KOY7","005162808","2","88Q2",	23,	0,	0,	0,	0,	0,	23
"KOY7","005162808","2","88Q3",	28,	0,	0,	0,	0,	0,	28
"KOY7","005162808","2","88Q4",	23,	0,	0,	0,	0,	0,	23
"KOY7","005162808","2","89Q1",	44,	0,	0,	3,	0,	0,	47
"KOY7","005162808","2","89Q2",	31,	0,	0,	2,	0,	0,	33
"KOY7","005162808","2","89Q3",	64,	0,	0,	3,	0,	37,	104
"KOY7","005162808","2","89Q4",	61,	0,	1,	1,	0,	0,	63
"K7B8","001487279","2","85YY",	17,	0,	8,	2,	0,	0,	27
"K7B8","001487279","2","86YY",	25,	1,	15,	1,	0,	0,	42
"K7B8","001487279","2","87YY",	11,	0,	1,	2,	0,	0,	14
"K7B8","001487279","2","88Q1",	4,	0,	0,	0,	0,	0,	4
"K7B8","001487279","2","88Q2",	8,	1,	2,	0,	0,	0,	11
"K7B8","001487279","2","88Q3",	11,	0,	0,	0,	0,	0,	11
"K7B8","001487279","2","88Q4",	4,	0,	0,	0,	0,	0,	4
"K7B8","001487279","2","89Q1",	10,	0,	0,	0,	0,	0,	10
"K7B8","001487279","2","89Q2",	20,	0,	0,	1,	0,	0,	21
"K7B8","001487279","2","89Q3",	10,	2,	0,	0,	0,	0,	12
"K7B8","001487279","2","89Q4",	10,	1,	1,	0,	0,	1,	13
"K7B8","001487279","7","85YY",	19,	1,	8,	0,	0,	5,	33
"K7B8","001487279","7","86YY",	23,	0,	18,	0,	0,	0,	41
"K7B8","001487279","7","87YY",	34,	0,	4,	2,	0,	0,	40
"K7B8","001487279","7","88Q1",	9,	0,	6,	0,	0,	0,	15
"K7B8","001487279","7","88Q2",	4,	0,	0,	0,	0,	0,	4
"K7B8","001487279","7","88Q3",	5,	0,	0,	0,	0,	0,	5
"K7B8","001487279","7","88Q4",	6,	0,	1,	0,	0,	0,	7
"K7B8","001487279","7","89Q1",	4,	0,	3,	0,	0,	0,	7
"K7B8","001487279","7","89Q2",	5,	0,	3,	0,	0,	0,	8
"K7B8","001487279","7","89Q3",	5,	0,	12,	0,	0,	0,	17
"K7B8","001487279","7","89Q4",	13,	0,	2,	0,	0,	0,	15
"LFVB","007825308","5","85YY",	2826,	315,	114,	7,	0,	0,	3262
"LFVB","007825308","5","86YY",	1630,	298,	145,	8,	39,	0,	2120
"LFVB","007825308","5","87YY",	1992,	356,	1100,	15,	0,	0,	3463
"LFVB","007825308","5","88Q1",	501,	55,	0,	10,	0,	0,	566
"LFVB","007825308","5","88Q2",	500,	63,	0,	3,	0,	0,	566
"LFVB","007825308","5","88Q3",	500,	85,	40,	12,	0,	2,	639
"LFVB","007825308","5","88Q4",	501,	90,	0,	12,	0,	0,	603
"LFVB","007825308","5","89Q1",	453,	90,	2,	8,	0,	0,	553
"LFVB","007825308","5","89Q2",	451,	44,	1,	1,	0,	0,	497
"LFVB","007825308","5","89Q3",	455,	63,	54,	5,	0,	0,	577
"LFVB","007825308","5","89Q4",	375,	80,	63,	0,	0,	0,	518
"LKHA","006914515","3","85YY",	56,	1,	16,	0,	0,	0,	73

"LKHA","006914515","3","86YY",	109,	0,	3,	0,	0,	2,	114
"LKHA","006914515","3","87YY",	96,	10,	3,	1,	0,	4,	114
"LKHA","006914515","3","88Q1",	15,	3,	0,	0,	0,	0,	18
"LKHA","006914515","3","88Q2",	18,	2,	0,	0,	0,	1,	21
"LKHA","006914515","3","88Q3",	7,	2,	0,	0,	0,	1,	10
"LKHA","006914515","3","88Q4",	7,	1,	0,	0,	0,	0,	8
"LKHA","006914515","3","89Q1",	28,	1,	0,	1,	0,	0,	30
"LKHA","006914515","3","89Q2",	25,	0,	0,	0,	0,	0,	25
"LKHA","006914515","3","89Q3",	32,	0,	0,	0,	0,	0,	32
"LKHA","006914515","3","89Q4",	19,	0,	0,	0,	0,	0,	19
"LKHA","006914515","6","85YY",	39,	0,	0,	0,	0,	1,	40
"LKHA","006914515","6","86YY",	44,	0,	0,	1,	0,	0,	45
"LKHA","006914515","6","87YY",	30,	1,	0,	0,	0,	0,	31
"LKHA","006914515","6","88Q1",	14,	0,	0,	0,	0,	0,	14
"LKHA","006914515","6","88Q2",	11,	0,	0,	0,	0,	0,	11
"LKHA","006914515","6","88Q3",	5,	0,	1,	0,	0,	0,	6
"LKHA","006914515","6","88Q4",	9,	0,	4,	0,	0,	0,	13
"LKHA","006914515","6","89Q1",	12,	1,	0,	0,	0,	0,	13
"LKHA","006914515","6","89Q2",	4,	0,	0,	0,	0,	0,	4
"LKHA","006914515","6","89Q3",	9,	0,	0,	0,	0,	0,	9
"LKHA","006914515","6","89Q4",	6,	0,	0,	0,	0,	0,	6
"LRCA","007569894","5","85YY",	154,	3,	1,	5,	0,	0,	163
"LRCA","007569894","5","86YY",	177,	0,	0,	2,	0,	3,	182
"LRCA","007569894","5","87YY",	190,	1,	12,	4,	0,	1,	208
"LRCA","007569894","5","88Q1",	52,	0,	12,	1,	0,	0,	65
"LRCA","007569894","5","88Q2",	52,	0,	0,	0,	0,	0,	52
"LRCA","007569894","5","88Q3",	48,	0,	17,	0,	0,	15,	80
"LRCA","007569894","5","88Q4",	51,	0,	26,	4,	0,	0,	81
"LRCA","007569894","5","89Q1",	24,	0,	8,	0,	0,	0,	32
"LRCA","007569894","5","89Q2",	57,	0,	0,	0,	0,	0,	57
"LRCA","007569894","5","89Q3",	70,	1,	4,	1,	0,	12,	88
"LRCA","007569894","5","89Q4",	90,	1,	0,	1,	0,	0,	92
"LX4A","011987659","5","85YY",	72,	1,	0,	20,	0,	2,	95
"LX4A","011987659","5","86YY",	49,	1,	0,	7,	0,	5,	62
"LX4A","011987659","5","87YY",	33,	1,	0,	13,	0,	1,	48
"LX4A","011987659","5","88Q1",	14,	0,	0,	2,	0,	0,	16
"LX4A","011987659","5","88Q2",	9,	0,	4,	22,	0,	0,	35
"LX4A","011987659","5","88Q3",	9,	0,	3,	4,	0,	1,	17
"LX4A","011987659","5","88Q4",	5,	0,	11,	3,	0,	0,	19
"LX4A","011987659","5","89Q1",	5,	0,	0,	2,	0,	0,	7
"LX4A","011987659","5","89Q2",	5,	0,	0,	1,	0,	0,	6
"LX4A","011987659","5","89Q3",	13,	0,	0,	2,	0,	0,	15
"LX4A","011987659","5","89Q4",	7,	0,	0,	6,	0,	2,	15
"L1TA","001812334","2","85YY",	503,	0,	0,	80,	0,	0,	583
"L1TA","001812334","2","86YY",	199,	3,	0,	28,	0,	0,	230
"L1TA","001812334","2","87YY",	535,	4,	8,	8,	0,	2,	557
"L1TA","001812334","2","88Q1",	100,	1,	0,	1,	0,	0,	102
"L1TA","001812334","2","88Q2",	99,	0,	0,	0,	0,	0,	99
"L1TA","001812334","2","88Q3",	100,	0,	1,	1,	0,	0,	102
"L1TA","001812334","2","88Q4",	99,	0,	1,	0,	0,	1,	101
"L1TA","001812334","2","89Q1",	91,	1,	0,	1,	0,	1,	94
"L1TA","001812334","2","89Q2",	92,	4,	0,	0,	0,	0,	96
"L1TA","001812334","2","89Q3",	113,	9,	0,	2,	0,	0,	124
"L1TA","001812334","2","89Q4",	123,	0,	0,	10,	0,	0,	133
"L1TA","001812334","6","85YY",	471,	3,	10,	3,	0,	0,	487

"L1TA","001812334","6","86YY",	207,	0,	0,	1,	0,	0,	208
"L1TA","001812334","6","87YY",	462,	0,	0,	5,	0,	0,	467
"L1TA","001812334","6","88Q1",	100,	0,	0,	3,	0,	0,	103
"L1TA","001812334","6","88Q2",	131,	0,	0,	1,	0,	0,	132
"L1TA","001812334","6","88Q3",	106,	0,	0,	0,	0,	0,	106
"L1TA","001812334","6","88Q4",	100,	0,	0,	2,	0,	0,	102
"L1TA","001812334","6","89Q1",	91,	3,	10,	1,	0,	0,	105
"L1TA","001812334","6","89Q2",	90,	0,	0,	1,	0,	0,	91
"L1TA","001812334","6","89Q3",	118,	0,	0,	2,	0,	0,	120
"L1TA","001812334","6","89Q4",	117,	0,	0,	2,	0,	0,	119
"L1TA","001812334","7","85YY",	0,	0,	0,	1,	0,	6,	7
"L1TA","001812334","7","86YY",	3,	0,	0,	0,	0,	0,	3
"L2BA","003944125","2","85YY",	260,	36,	1,	13,	23,	1,	334
"L2BA","003944125","2","86YY",	298,	43,	0,	62,	28,	1,	432
"L2BA","003944125","2","87YY",	160,	29,	0,	36,	0,	0,	225
"L2BA","003944125","2","88Q1",	92,	13,	0,	11,	0,	0,	116
"L2BA","003944125","2","88Q2",	52,	12,	0,	3,	0,	0,	67
"L2BA","003944125","2","88Q3",	18,	0,	0,	7,	0,	0,	25
"L2BA","003944125","2","88Q4",	18,	1,	0,	10,	1,	0,	30
"L2BA","003944125","2","89Q1",	52,	2,	0,	3,	0,	0,	57
"L2BA","003944125","2","89Q2",	52,	3,	0,	17,	0,	0,	72
"L2BA","003944125","2","89Q3",	34,	1,	0,	2,	0,	0,	37
"L2BA","003944125","2","89Q4",	67,	5,	0,	17,	0,	0,	89
"L6FA","008671527","3","85YY",	87,	2,	8,	1,	0,	0,	98
"L6FA","008671527","3","86YY",	78,	0,	2,	0,	0,	0,	80
"L6FA","008671527","3","87YY",	72,	0,	0,	0,	0,	0,	72
"L6FA","008671527","3","88Q1",	15,	0,	0,	0,	0,	0,	15
"L6FA","008671527","3","88Q2",	21,	0,	0,	0,	0,	0,	21
"L6FA","008671527","3","88Q3",	33,	0,	0,	0,	0,	0,	33
"L6FA","008671527","3","88Q4",	33,	0,	0,	0,	0,	0,	33
"L6FA","008671527","3","89Q1",	19,	0,	0,	0,	0,	0,	19
"L6FA","008671527","3","89Q2",	15,	0,	0,	0,	0,	0,	15
"L6FA","008671527","3","89Q3",	18,	0,	0,	0,	0,	0,	18
"L6FA","008671527","3","89Q4",	11,	0,	0,	0,	0,	0,	11
"L6FA","008671527","6","85YY",	41,	1,	22,	1,	0,	5,	70
"L6FA","008671527","6","86YY",	85,	0,	39,	2,	0,	0,	126
"L6FA","008671527","6","87YY",	97,	9,	1,	1,	0,	0,	108
"L6FA","008671527","6","88Q1",	15,	1,	0,	0,	0,	0,	16
"L6FA","008671527","6","88Q2",	16,	0,	0,	0,	0,	0,	16
"L6FA","008671527","6","88Q3",	33,	0,	0,	0,	0,	0,	33
"L6FA","008671527","6","88Q4",	28,	0,	2,	1,	0,	0,	31
"L6FA","008671527","6","89Q1",	12,	0,	1,	1,	0,	0,	14
"L6FA","008671527","6","89Q2",	20,	0,	1,	1,	0,	0,	22
"L6FA","008671527","6","89Q3",	8,	0,	0,	0,	0,	0,	8
"L6FA","008671527","6","89Q4",	2,	0,	0,	0,	0,	20,	22
"L8XA","012555640","2","85YY",	163,	5,	0,	7,	0,	0,	175
"L8XA","012555640","2","86YY",	40,	1,	0,	1,	0,	0,	42
"L8XA","012555640","2","87YY",	82,	14,	18,	13,	0,	3,	130
"L8XA","012555640","2","88Q1",	64,	0,	0,	0,	0,	0,	64
"L8XA","012555640","2","88Q2",	70,	1,	12,	0,	0,	0,	83
"L8XA","012555640","2","88Q3",	77,	0,	0,	1,	0,	0,	78
"L8XA","012555640","2","88Q4",	52,	2,	16,	4,	0,	0,	74
"L8XA","012555640","2","89Q1",	48,	0,	0,	2,	0,	0,	50
"L8XA","012555640","2","89Q2",	51,	1,	0,	3,	0,	4,	59
"L8XA","012555640","2","89Q3",	57,	0,	0,	1,	0,	0,	58

"L8XA","01255564O","2","89Q4",	66,	0,	0,	3,	0,	0,	69
"L8XA","01255564O","6","88Q3",	8,	0,	0,	0,	0,	0,	8
"L8XA","01255564O","6","88Q4",	13,	3,	7,	0,	0,	0,	23
"L8XA","01255564O","6","89Q1",	6,	0,	0,	1,	0,	0,	7
"L8XA","01255564O","6","89Q2",	3,	0,	3,	0,	0,	0,	6
"L8XA","01255564O","6","89Q3",	11,	0,	0,	0,	0,	0,	11
"L8XA","01255564O","6","89Q4",	14,	0,	0,	0,	0,	0,	14
"MA6A","01201960I","1","85YY",	133,	0,	18,	21,	0,	1,	173
"MA6A","01201960I","1","86YY",	109,	1,	9,	11,	0,	0,	130
"MA6A","01201960I","1","87YY",	91,	1,	10,	6,	0,	3,	111
"MA6A","01201960I","1","88Q1",	18,	0,	8,	1,	2,	0,	29
"MA6A","01201960I","1","88Q2",	8,	0,	0,	1,	0,	0,	9
"MA6A","01201960I","1","88Q3",	3,	0,	0,	0,	0,	0,	3
"MA6A","01201960I","1","88Q4",	3,	0,	1,	0,	0,	0,	4
"MA6A","01201960I","1","89Q1",	24,	0,	0,	0,	0,	0,	24
"MA6A","01201960I","1","89Q2",	14,	0,	0,	0,	0,	0,	14
"MA6A","01201960I","1","89Q3",	14,	0,	0,	0,	0,	0,	14
"MA6A","01201960I","1","89Q4",	29,	1,	0,	3,	0,	0,	33
"MA6A","01201960I","7","85YY",	74,	0,	1,	9,	0,	1,	85
"MA6A","01201960I","7","86YY",	55,	0,	16,	4,	0,	3,	78
"MA6A","01201960I","7","87YY",	111,	0,	23,	5,	0,	1,	140
"MA6A","01201960I","7","88Q1",	19,	1,	4,	3,	0,	1,	28
"MA6A","01201960I","7","88Q2",	17,	0,	15,	1,	0,	0,	33
"MA6A","01201960I","7","88Q3",	19,	1,	0,	4,	0,	3,	27
"MA6A","01201960I","7","88Q4",	11,	0,	21,	1,	0,	0,	33
"MA6A","01201960I","7","89Q1",	25,	0,	0,	1,	0,	0,	26
"MA6A","01201960I","7","89Q2",	14,	0,	15,	0,	0,	12,	41
"MA6A","01201960I","7","89Q3",	45,	0,	14,	0,	0,	2,	61
"MA6A","01201960I","7","89Q4",	50,	0,	8,	1,	0,	8,	67
"MB5A","00169054S","5","85YY",	288,	288,	27,	0,	0,	0,	603
"MB5A","00169054S","5","86YY",	171,	164,	0,	1,	0,	0,	336
"MB5A","00169054S","5","87YY",	72,	69,	0,	0,	0,	0,	141
"MB5A","00169054S","5","88Q1",	29,	35,	0,	0,	0,	0,	64
"MB5A","00169054S","5","88Q2",	17,	2,	0,	0,	0,	0,	19
"MB5A","00169054S","5","88Q3",	45,	1,	0,	0,	0,	0,	46
"MB5A","00169054S","5","88Q4",	44,	0,	0,	0,	0,	0,	44
"MB5A","00169054S","5","89Q1",	67,	34,	0,	0,	0,	0,	101
"MB5A","00169054S","5","89Q2",	33,	3,	0,	0,	0,	0,	36
"MB5A","00169054S","5","89Q3",	65,	5,	0,	0,	0,	0,	70
"MB5A","00169054S","5","89Q4",	65,	37,	0,	1,	0,	0,	103
"MDRA","01129013B","1","85YY",	82,	3,	2,	3,	0,	2,	92
"MDRA","01129013B","1","86YY",	85,	6,	1,	3,	0,	0,	95
"MDRA","01129013B","1","87YY",	41,	1,	2,	11,	0,	7,	62
"MDRA","01129013B","1","88Q1",	28,	0,	2,	5,	0,	0,	35
"MDRA","01129013B","1","88Q2",	28,	0,	1,	3,	0,	1,	33
"MDRA","01129013B","1","88Q3",	25,	1,	0,	5,	0,	0,	31
"MDRA","01129013B","1","88Q4",	25,	3,	0,	1,	0,	0,	29
"MDRA","01129013B","1","89Q1",	21,	2,	0,	1,	0,	0,	24
"MDRA","01129013B","1","89Q2",	21,	0,	0,	0,	0,	0,	21
"MDRA","01129013B","1","89Q3",	20,	0,	0,	3,	0,	0,	23
"MDRA","01129013B","1","89Q4",	20,	0,	0,	1,	0,	0,	21
"MDRA","01129013B","7","85YY",	66,	24,	10,	7,	0,	0,	107
"MDRA","01129013B","7","86YY",	96,	9,	9,	9,	0,	7,	130
"MDRA","01129013B","7","87YY",	207,	10,	0,	33,	0,	2,	252
"MDRA","01129013B","7","88Q1",	26,	0,	0,	11,	0,	0,	37

"MDRA","011290138","7","86Q2",	25,	1,	0,	1,	0,	1,	28
"MDRA","011290138","7","88Q3",	38,	0,	0,	0,	0,	0,	38
"MDRA","011290138","7","86Q4",	41,	0,	0,	7,	0,	0,	48
"MDRA","011290138","7","89Q1",	24,	1,	0,	3,	0,	0,	28
"MDRA","011290138","7","89Q2",	27,	0,	0,	0,	0,	0,	27
"MDRA","011290138","7","89Q3",	8,	0,	0,	0,	0,	1,	9
"MDRA","011290138","7","89Q4",	8,	1,	0,	0,	0,	0,	9
"MUAA","001655873","5","85YY",	189,	0,	0,	9,	0,	0,	198
"MUAA","001655873","5","86YY",	173,	0,	0,	16,	0,	1,	190
"MUAA","001655873","5","87YY",	154,	6,	5,	17,	0,	0,	182
"MUAA","001655873","5","88Q1",	36,	0,	0,	1,	0,	0,	37
"MUAA","001655873","5","88Q2",	37,	2,	0,	1,	0,	0,	40
"MUAA","001655873","5","88Q3",	20,	0,	0,	1,	0,	0,	21
"MUAA","001655873","5","88Q4",	22,	0,	0,	2,	0,	0,	24
"MUAA","001655873","5","89Q1",	37,	0,	0,	4,	0,	0,	41
"MUAA","001655873","5","89Q2",	43,	0,	0,	7,	0,	0,	50
"MUAA","001655873","5","89Q3",	23,	0,	0,	0,	0,	0,	23
"MUAA","001655873","5","89Q4",	23,	0,	0,	0,	0,	0,	23
"MUAA","001655873","6","85YY",	80,	0,	2,	3,	0,	0,	85
"MUAA","001655873","6","86YY",	50,	1,	0,	1,	0,	3,	55
"MUAA","001655873","6","87YY",	119,	0,	0,	3,	0,	0,	122
"MUAA","001655873","6","88Q1",	41,	0,	0,	0,	0,	0,	41
"MUAA","001655873","6","88Q2",	15,	0,	0,	0,	0,	0,	15
"MUAA","001655873","6","88Q3",	5,	2,	0,	0,	0,	0,	7
"MUAA","001655873","6","88Q4",	7,	0,	0,	1,	0,	2,	10
"MUAA","001655873","6","89Q1",	25,	2,	0,	0,	0,	2,	29
"MUAA","001655873","6","89Q2",	12,	1,	0,	0,	0,	0,	13
"MUAA","001655873","6","89Q3",	6,	0,	0,	0,	0,	0,	6
"MUAA","001655873","6","89Q4",	6,	0,	0,	1,	0,	0,	7
"NVNO","010850351","1","85YY",	27,	1,	0,	1,	0,	0,	29
"NVNO","010850351","1","86YY",	39,	3,	19,	1,	0,	0,	62
"NVNO","010850351","1","87YY",	67,	3,	7,	3,	0,	0,	80
"NVNO","010850351","1","88Q1",	25,	0,	0,	0,	0,	0,	25
"NVNO","010850351","1","88Q2",	12,	0,	0,	0,	0,	0,	12
"NVNO","010850351","1","88Q3",	12,	0,	2,	0,	0,	0,	14
"NVNO","010850351","1","88Q4",	13,	0,	4,	2,	0,	0,	19
"NVNO","010850351","1","89Q1",	26,	0,	1,	0,	0,	0,	27
"NVNO","010850351","1","89Q2",	26,	0,	0,	2,	0,	0,	28
"NVNO","010850351","1","89Q3",	20,	0,	13,	3,	0,	0,	36
"NVNO","010850351","1","89Q4",	10,	0,	10,	0,	0,	0,	20
"NVNO","010850351","7","85YY",	1,	0,	0,	1,	0,	0,	2
"N9H2","010936334","2","85YY",	10,	0,	0,	0,	0,	0,	10
"N9H2","010936334","2","86YY",	13,	0,	16,	1,	0,	0,	30
"N9H2","010936334","2","87YY",	47,	0,	6,	1,	0,	0,	54
"N9H2","010936334","2","88Q1",	10,	0,	2,	0,	0,	0,	12
"N9H2","010936334","2","88Q2",	10,	1,	2,	0,	0,	0,	13
"N9H2","010936334","2","88Q3",	11,	0,	2,	0,	0,	0,	13
"N9H2","010936334","2","88Q4",	14,	0,	5,	0,	0,	0,	19
"N9H2","010936334","2","89Q1",	30,	0,	0,	1,	0,	0,	31
"N9H2","010936334","2","89Q2",	21,	0,	0,	0,	0,	0,	21
"N9H2","010936334","2","89Q3",	30,	0,	2,	0,	0,	0,	32
"N9H2","010936334","2","89Q4",	28,	0,	2,	0,	0,	0,	30
"PG3A","001609920","5","86YY",	12,	0,	0,	3,	0,	3,	18
"PG3A","001609920","5","87YY",	36,	0,	0,	3,	0,	0,	39
"PG3A","001609920","5","88Q1",	2,	0,	0,	0,	0,	0,	2

"PG3A"	"001609920"	"5"	"88Q2",	4,	0,	0,	0,	0,	0,	4
"PG3A"	"001609920"	"5"	"88Q3",	3,	0,	0,	1,	0,	0,	4
"PG3A"	"001609920"	"5"	"88Q4",	0,	0,	3,	0,	0,	0,	3
"PG3A"	"001609920"	"7"	"85YY",	51,	0,	0,	2,	0,	0,	53
"PG3A"	"001609920"	"7"	"86YY",	33,	1,	10,	5,	0,	0,	49
"PG3A"	"001609920"	"7"	"87YY",	64,	0,	0,	12,	0,	0,	76
"PG3A"	"001609920"	"7"	"88Q1",	4,	0,	0,	0,	0,	0,	4
"PG3A"	"001609920"	"7"	"88Q2",	2,	1,	0,	0,	0,	0,	3
"PG3A"	"001609920"	"7"	"88Q3",	3,	0,	0,	0,	0,	0,	3
"PG3A"	"001609920"	"7"	"88Q4",	4,	0,	0,	0,	0,	0,	4
"PG3A"	"001609920"	"7"	"89Q1",	2,	0,	0,	0,	0,	0,	2
"PG3A"	"001609920"	"7"	"89Q3",	8,	0,	0,	0,	0,	0,	8
"PG3A"	"001609920"	"7"	"89Q4",	8,	0,	0,	0,	0,	0,	8
"PG4A"	"001609921"	"5"	"86YY",	18,	1,	0,	3,	0,	3,	25
"PG4A"	"001609921"	"5"	"87YY",	16,	0,	1,	1,	0,	0,	18
"PG4A"	"001609921"	"5"	"88Q1",	2,	0,	0,	0,	0,	0,	2
"PG4A"	"001609921"	"5"	"88Q2",	5,	0,	0,	1,	0,	0,	6
"PG4A"	"001609921"	"5"	"88Q3",	0,	0,	0,	1,	0,	0,	1
"PG4A"	"001609921"	"7"	"85YY",	28,	0,	0,	0,	0,	0,	28
"PG4A"	"001609921"	"7"	"86YY",	30,	0,	6,	4,	0,	0,	40
"PG4A"	"001609921"	"7"	"87YY",	36,	0,	0,	10,	0,	0,	46
"PG4A"	"001609921"	"7"	"88Q1",	5,	0,	0,	0,	0,	0,	5
"PG4A"	"001609921"	"7"	"88Q2",	3,	0,	0,	0,	0,	0,	3
"PG4A"	"001609921"	"7"	"88Q3",	3,	0,	0,	0,	0,	0,	3
"PG4A"	"001609921"	"7"	"88Q4",	4,	0,	0,	0,	0,	0,	4
"PG4A"	"001609921"	"7"	"89Q4",	0,	0,	0,	1,	0,	0,	1
"PV49"	"011225980"	"2"	"85YY",	37,	1,	0,	3,	0,	0,	41
"PV49"	"011225980"	"2"	"86YY",	45,	0,	0,	2,	0,	0,	47
"PV49"	"011225980"	"2"	"87YY",	35,	0,	0,	1,	0,	0,	36
"PV49"	"011225980"	"2"	"88Q1",	7,	1,	0,	1,	0,	0,	9
"PV49"	"011225980"	"2"	"88Q2",	7,	0,	0,	1,	0,	0,	8
"PV49"	"011225980"	"2"	"88Q3",	8,	0,	0,	0,	0,	0,	8
"PV49"	"011225980"	"2"	"88Q4",	4,	0,	0,	0,	0,	0,	4
"PV49"	"011225980"	"2"	"89Q1",	6,	0,	0,	0,	0,	0,	6
"PV49"	"011225980"	"2"	"89Q2",	5,	0,	0,	0,	0,	0,	5
"PV49"	"011225980"	"2"	"89Q3",	8,	0,	0,	1,	0,	0,	9
"PV49"	"011225980"	"2"	"89Q4",	6,	1,	0,	0,	0,	0,	7
"PV49"	"011225980"	"6"	"85YY",	0,	0,	0,	11,	0,	0,	11
"PV49"	"011225980"	"6"	"87YY",	1,	0,	0,	0,	0,	0,	1
"P406"	"011358960"	"3"	"85YY",	7,	0,	4,	0,	0,	0,	11
"P406"	"011358960"	"3"	"86YY",	19,	0,	4,	0,	0,	0,	23
"P406"	"011358960"	"3"	"87YY",	40,	0,	0,	1,	0,	0,	41
"P406"	"011358960"	"3"	"88Q1",	13,	0,	0,	0,	0,	0,	13
"P406"	"011358960"	"3"	"88Q2",	13,	0,	0,	0,	0,	0,	13
"P406"	"011358960"	"3"	"88Q3",	7,	0,	0,	0,	0,	0,	7
"P406"	"011358960"	"3"	"88Q4",	5,	0,	0,	0,	0,	0,	5
"P406"	"011358960"	"3"	"89Q1",	12,	0,	0,	0,	0,	0,	12
"P406"	"011358960"	"3"	"89Q2",	31,	0,	0,	0,	0,	0,	31
"P406"	"011358960"	"3"	"89Q3",	20,	0,	0,	0,	0,	0,	20
"P406"	"011358960"	"3"	"89Q4",	32,	0,	0,	0,	0,	0,	32
"QE48"	"011506952"	"1"	"86YY",	6,	0,	0,	0,	0,	0,	6
"QE48"	"011506952"	"1"	"87YY",	13,	0,	0,	0,	0,	0,	13
"QE48"	"011506952"	"1"	"88Q1",	3,	0,	0,	0,	0,	0,	3
"QE48"	"011506952"	"1"	"88Q2",	2,	0,	0,	0,	0,	0,	2
"QE48"	"011506952"	"1"	"88Q3",	4,	0,	1,	0,	0,	0,	5

"QE48","011506952","1","88Q4",	2,	0,	0,	0,	0,	0,	2
"QE48","011506952","1","89Q1",	2,	0,	0,	0,	0,	0,	2
"QE48","011506952","1","89Q2",	2,	0,	0,	0,	0,	0,	2
"QE48","011506952","1","89Q3",	4,	1,	0,	0,	0,	0,	5
"QE48","011506952","1","89Q4",	2,	0,	0,	0,	0,	0,	2
"QRHA","004646946","3","85YY",	27,	0,	25,	0,	0,	0,	52
"QRHA","004646946","3","86YY",	25,	0,	10,	0,	0,	0,	35
"QRHA","004646946","3","87YY",	17,	0,	15,	0,	0,	0,	32
"QRHA","004646946","3","88Q1",	2,	0,	0,	0,	0,	0,	2
"QRHA","004646946","3","88Q2",	20,	0,	0,	1,	0,	0,	21
"QRHA","004646946","3","88Q3",	12,	0,	0,	0,	0,	0,	12
"QRHA","004646946","3","88Q4",	10,	0,	0,	0,	0,	0,	10
"QRHA","004646946","3","89Q1",	9,	0,	0,	0,	0,	0,	9
"QRHA","004646946","3","89Q2",	12,	0,	0,	0,	0,	0,	12
"QRHA","004646946","3","89Q3",	22,	0,	0,	0,	0,	0,	22
"QRHA","004646946","3","89Q4",	22,	0,	0,	0,	0,	0,	22
"QRHA","004646946","6","85YY",	65,	1,	13,	1,	0,	0,	80
"QRHA","004646946","6","86YY",	47,	0,	3,	5,	0,	0,	55
"QRHA","004646946","6","87YY",	14,	0,	0,	2,	0,	0,	16
"QRHA","004646946","6","88Q1",	33,	0,	0,	1,	0,	0,	34
"QRHA","004646946","6","88Q2",	28,	0,	0,	0,	0,	0,	28
"QRHA","004646946","6","88Q3",	9,	0,	0,	0,	0,	0,	9
"QRHA","004646946","6","88Q4",	8,	0,	0,	0,	0,	0,	8
"QRHA","004646946","6","89Q1",	15,	0,	0,	0,	0,	0,	15
"QRHA","004646946","6","89Q2",	9,	0,	0,	0,	0,	0,	9
"QRHA","004646946","6","89Q3",	5,	0,	0,	1,	0,	0,	6
"QRHA","004646946","6","89Q4",	9,	0,	0,	0,	0,	0,	9
"QWRA","011390361","1","85YY",	102,	1,	0,	2,	0,	0,	105
"QWRA","011390361","1","86YY",	78,	0,	0,	0,	0,	0,	78
"QWRA","011390361","1","87YY",	98,	0,	25,	2,	0,	0,	125
"QWRA","011390361","1","88Q1",	10,	0,	2,	0,	0,	0,	12
"QWRA","011390361","1","88Q2",	10,	0,	1,	0,	0,	0,	11
"QWRA","011390361","1","88Q3",	15,	1,	6,	0,	0,	0,	22
"QWRA","011390361","1","88Q4",	14,	0,	2,	0,	0,	0,	16
"QWRA","011390361","1","89Q1",	31,	0,	2,	0,	0,	0,	33
"QWRA","011390361","1","89Q2",	18,	0,	0,	0,	0,	0,	18
"QWRA","011390361","1","89Q3",	6,	0,	0,	0,	0,	0,	6
"QWRA","011390361","1","89Q4",	16,	0,	0,	0,	0,	0,	16
"QWRA","011390361","2","85YY",	79,	0,	0,	8,	0,	0,	87
"QWRA","011390361","2","86YY",	43,	1,	0,	7,	0,	0,	51
"QWRA","011390361","2","87YY",	70,	0,	35,	9,	0,	2,	116
"QWRA","011390361","2","88Q1",	14,	0,	5,	1,	0,	0,	20
"QWRA","011390361","2","88Q2",	13,	0,	0,	2,	0,	0,	15
"QWRA","011390361","2","88Q3",	16,	0,	0,	1,	0,	0,	17
"QWRA","011390361","2","88Q4",	11,	0,	2,	0,	0,	0,	13
"QWRA","011390361","2","89Q1",	20,	1,	0,	0,	0,	0,	21
"QWRA","011390361","2","89Q2",	25,	0,	0,	0,	0,	0,	25
"QWRA","011390361","2","89Q3",	40,	2,	0,	1,	0,	11,	54
"QWRA","011390361","2","89Q4",	30,	0,	0,	1,	0,	0,	31
"RYA4","012402885","1","89Q2",	14,	0,	1,	0,	0,	0,	15
"RYA4","012402885","1","89Q3",	26,	0,	1,	0,	0,	0,	27
"RYA4","012402885","1","89Q4",	17,	0,	0,	0,	0,	0,	17
"R72A","008684351","3","85YY",	8,	4,	0,	0,	0,	0,	12
"R72A","008684351","3","86YY",	13,	1,	0,	3,	0,	4,	21
"R72A","008684351","3","87YY",	15,	4,	0,	1,	0,	0,	20

"R72A","008684351","3","88Q1",	6,	0,	0,	0,	0,	0,	6
"R72A","008684351","3","88Q2",	7,	0,	0,	1,	0,	1,	9
"R72A","008684351","3","88Q3",	4,	0,	1,	0,	0,	0,	5
"R72A","008684351","3","88Q4",	10,	1,	3,	1,	0,	0,	15
"R72A","008684351","3","89Q1",	12,	1,	1,	0,	0,	0,	14
"R72A","008684351","3","89Q2",	4,	0,	0,	0,	0,	0,	4
"R72A","008684351","3","89Q3",	4,	0,	0,	0,	0,	0,	4
"R72A","008684351","3","89Q4",	4,	0,	0,	0,	0,	0,	4
"R72A","008684351","6","85YY",	6,	1,	2,	1,	0,	5,	15
"R72A","008684351","6","86YY",	31,	2,	0,	2,	0,	2,	37
"R72A","008684351","6","87YY",	9,	2,	9,	0,	0,	2,	22
"R72A","008684351","6","88Q1",	5,	0,	1,	0,	0,	0,	6
"R72A","008684351","6","88Q2",	5,	0,	0,	0,	0,	0,	5
"R72A","008684351","6","88Q3",	1,	0,	2,	1,	0,	0,	4
"R72A","008684351","6","88Q4",	5,	1,	2,	0,	0,	1,	9
"R72A","008684351","6","89Q1",	8,	0,	0,	0,	0,	0,	8
"R72A","008684351","6","89Q2",	4,	1,	0,	1,	0,	0,	6
"R72A","008684351","6","89Q3",	8,	0,	0,	1,	0,	0,	9
"R72A","008684351","6","89Q4",	12,	2,	0,	0,	0,	0,	14
"S2PA","011758902","5","85YY",	55,	1,	4,	0,	0,	0,	60
"S2PA","011758902","5","86YY",	81,	0,	9,	1,	0,	0,	91
"S2PA","011758902","5","87YY",	71,	0,	3,	1,	0,	0,	75
"S2PA","011758902","5","88Q1",	15,	0,	0,	0,	0,	0,	15
"S2PA","011758902","5","88Q2",	15,	0,	0,	0,	0,	0,	15
"S2PA","011758902","5","88Q3",	40,	0,	0,	4,	0,	0,	44
"S2PA","011758902","5","88Q4",	30,	0,	0,	1,	0,	0,	31
"S2PA","011758902","5","89Q1",	15,	0,	0,	0,	0,	0,	15
"S2PA","011758902","5","89Q2",	10,	0,	0,	0,	0,	0,	10
"S2PA","011758902","5","89Q3",	10,	0,	0,	0,	0,	0,	10
"S2PA","011758902","5","89Q4",	10,	0,	0,	0,	0,	0,	10
"S2PA","011758902","7","85YY",	45,	1,	0,	0,	0,	0,	46
"S2PA","011758902","7","86YY",	32,	0,	0,	0,	0,	0,	32
"S2PA","011758902","7","87YY",	15,	0,	0,	0,	0,	0,	15
"S2PA","011758902","7","88Q1",	2,	0,	0,	0,	0,	0,	2
"S2PA","011758902","7","88Q2",	4,	0,	0,	0,	0,	0,	4
"S2PA","011758902","7","88Q3",	14,	0,	0,	0,	0,	0,	14
"S2PA","011758902","7","88Q4",	13,	0,	0,	0,	0,	0,	13
"S2PA","011758902","7","89Q1",	20,	0,	0,	0,	0,	0,	20
"S2PA","011758902","7","89Q2",	15,	0,	0,	0,	0,	0,	15
"S2PA","011758902","7","89Q3",	9,	0,	0,	0,	0,	0,	9
"S2PA","011758902","7","89Q4",	5,	0,	0,	0,	0,	0,	5
"UEYA","004162929","2","85YY",	18,	0,	11,	1,	0,	0,	30
"UEYA","004162929","2","86YY",	77,	0,	4,	1,	0,	0,	82
"UEYA","004162929","2","87YY",	30,	0,	0,	3,	0,	0,	33
"UEYA","004162929","2","88Q1",	5,	0,	0,	0,	0,	1,	6
"UEYA","004162929","2","88Q2",	16,	0,	0,	1,	0,	0,	17
"UEYA","004162929","2","88Q3",	12,	1,	0,	3,	0,	1,	17
"UEYA","004162929","2","88Q4",	13,	0,	0,	0,	0,	1,	14
"UEYA","004162929","2","89Q1",	6,	0,	1,	0,	0,	1,	8
"UEYA","004162929","2","89Q2",	3,	0,	0,	0,	0,	6,	9
"UEYA","004162929","2","89Q3",	1,	0,	0,	0,	0,	0,	1
"UEYA","004162929","2","89Q4",	3,	1,	0,	0,	0,	0,	4
"UPLA","008719240","5","85YY",	212,	0,	163,	1,	0,	0,	376
"UPLA","008719240","5","86YY",	140,	0,	13,	0,	0,	9,	162
"UPLA","008719240","5","87YY",	314,	3,	111,	1,	0,	0,	429

"UPLA"	"008719240"	"5"	"88Q1"	70,	0,	18,	1,	0,	0,	89
"UPLA"	"008719240"	"5"	"88Q2"	111,	0,	0,	0,	0,	0,	111
"UPLA"	"008719240"	"5"	"88Q3"	110,	0,	0,	4,	0,	0,	114
"UPLA"	"008719240"	"5"	"88Q4"	151,	0,	50,	1,	0,	0,	202
"UPLA"	"008719240"	"5"	"89Q1"	103,	0,	26,	0,	0,	0,	129
"UPLA"	"008719240"	"5"	"89Q2"	100,	2,	58,	1,	0,	0,	161
"UPLA"	"008719240"	"5"	"89Q3"	90,	6,	25,	0,	0,	0,	121
"UPLA"	"008719240"	"5"	"89Q4"	75,	0,	33,	14,	0,	0,	122
"UPLA"	"008719240"	"6"	"85YY"	214,	29,	39,	1,	0,	0,	283
"UPLA"	"008719240"	"6"	"86YY"	247,	12,	0,	0,	0,	0,	259
"UPLA"	"008719240"	"6"	"87YY"	311,	35,	48,	5,	0,	0,	399
"UPLA"	"008719240"	"6"	"88Q1"	60,	4,	12,	0,	0,	0,	76
"UPLA"	"008719240"	"6"	"88Q2"	60,	6,	0,	0,	0,	0,	66
"UPLA"	"008719240"	"6"	"88Q3"	85,	0,	6,	1,	0,	0,	92
"UPLA"	"008719240"	"6"	"88Q4"	84,	9,	15,	0,	0,	0,	108
"UPLA"	"008719240"	"6"	"89Q1"	51,	17,	24,	0,	0,	0,	92
"UPLA"	"008719240"	"6"	"89Q2"	30,	4,	7,	0,	0,	0,	41
"UPLA"	"008719240"	"6"	"89Q3"	37,	4,	16,	0,	0,	0,	57
"UPLA"	"008719240"	"6"	"89Q4"	47,	0,	0,	0,	0,	1,	48
"VCEA"	"010550468"	"5"	"85YY"	572,	1,	10,	81,	0,	0,	664
"VCEA"	"010550468"	"5"	"86YY"	549,	2,	11,	41,	0,	1,	604
"VCEA"	"010550468"	"5"	"87YY"	336,	2,	0,	58,	0,	0,	396
"VCEA"	"010550468"	"5"	"88Q1"	121,	4,	1,	39,	3,	0,	168
"VCEA"	"010550468"	"5"	"88Q2"	121,	0,	1,	16,	3,	0,	141
"VCEA"	"010550468"	"5"	"88Q3"	146,	4,	0,	32,	2,	0,	184
"VCEA"	"010550468"	"5"	"88Q4"	146,	0,	2,	19,	0,	0,	167
"VCEA"	"010550468"	"5"	"89Q1"	43,	1,	0,	12,	1,	1,	58
"VCEA"	"010550468"	"5"	"89Q2"	43,	0,	0,	18,	0,	0,	61
"VCEA"	"010550468"	"5"	"89Q3"	132,	0,	0,	22,	0,	0,	154
"VCEA"	"010550468"	"5"	"89Q4"	132,	0,	0,	16,	0,	0,	148
"VJKA"	"011351729"	"5"	"85YY"	226,	8,	55,	1,	0,	0,	290
"VJKA"	"011351729"	"5"	"86YY"	124,	0,	38,	4,	0,	0,	166
"VJKA"	"011351729"	"5"	"87YY"	98,	4,	7,	2,	0,	0,	111
"VJKA"	"011351729"	"5"	"88Q1"	35,	0,	0,	3,	0,	0,	38
"VJKA"	"011351729"	"5"	"88Q2"	35,	1,	0,	2,	0,	0,	38
"VJKA"	"011351729"	"5"	"88Q3"	22,	0,	0,	0,	0,	0,	22
"VJKA"	"011351729"	"5"	"88Q4"	20,	0,	0,	0,	0,	0,	20
"VJKA"	"011351729"	"5"	"89Q1"	19,	0,	0,	0,	0,	0,	19
"VJKA"	"011351729"	"5"	"89Q2"	1,	0,	3,	0,	0,	0,	4
"V3HA"	"001655838"	"5"	"85YY"	515,	1,	0,	19,	0,	4,	539
"V3HA"	"001655838"	"5"	"86YY"	438,	0,	24,	21,	0,	0,	483
"V3HA"	"001655838"	"5"	"87YY"	349,	0,	114,	16,	0,	0,	479
"V3HA"	"001655838"	"5"	"88Q1"	90,	0,	2,	4,	0,	0,	96
"V3HA"	"001655838"	"5"	"88Q2"	80,	0,	0,	2,	0,	0,	82
"V3HA"	"001655838"	"5"	"88Q3"	151,	0,	0,	6,	0,	0,	157
"V3HA"	"001655838"	"5"	"88Q4"	156,	0,	0,	9,	0,	3,	168
"V3HA"	"001655838"	"5"	"89Q1"	104,	0,	48,	4,	0,	0,	156
"V3HA"	"001655838"	"5"	"89Q2"	156,	1,	69,	20,	0,	0,	246
"V3HA"	"001655838"	"5"	"89Q3"	199,	1,	77,	16,	0,	0,	293
"V3HA"	"001655838"	"5"	"89Q4"	201,	1,	0,	12,	0,	0,	214
"V3HA"	"001655838"	"6"	"85YY"	242,	0,	11,	1,	0,	1,	255
"V3HA"	"001655838"	"6"	"86YY"	173,	0,	0,	2,	0,	0,	175
"V3HA"	"001655838"	"6"	"87YY"	138,	0,	2,	3,	0,	0,	143
"V3HA"	"001655838"	"6"	"88Q1"	40,	0,	0,	0,	0,	0,	40
"V3HA"	"001655838"	"6"	"88Q2"	75,	1,	0,	2,	0,	0,	78

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"V3HA","001655838","6","88Q3",	100,	0,	0,	0,	0,	0,	100
"V3HA","001655838","6","88Q4",	50,	0,	0,	2,	0,	0,	52
"V3HA","001655838","6","89Q1",	49,	1,	0,	0,	0,	0,	50
"V3HA","001655838","6","89Q2",	105,	0,	13,	0,	0,	0,	118
"V3HA","001655838","6","89Q3",	31,	0,	0,	1,	0,	0,	32
"V3HA","001655838","6","89Q4",	60,	0,	0,	0,	0,	0,	60
"V3NA","001911449","2","85YY",	158,	0,	2,	2,	0,	0,	162
"V3NA","001911449","2","86YY",	121,	0,	0,	4,	0,	0,	125
"V3NA","001911449","2","87YY",	103,	0,	0,	1,	0,	0,	104
"V3NA","001911449","2","88Q1",	30,	0,	0,	1,	0,	0,	31
"V3NA","001911449","2","88Q2",	30,	0,	0,	0,	0,	0,	30
"V3NA","001911449","2","88Q3",	29,	0,	0,	2,	0,	0,	31
"V3NA","001911449","2","88Q4",	30,	0,	1,	0,	0,	0,	31
"V3NA","001911449","2","89Q1",	26,	0,	0,	0,	0,	0,	26
"V3NA","001911449","2","89Q2",	26,	0,	1,	0,	0,	1,	28
"V3NA","001911449","2","89Q3",	27,	0,	0,	0,	0,	0,	27
"V3NA","001911449","2","89Q4",	26,	0,	0,	1,	0,	3,	30
"WCWA","008823103","6","85YY",	90,	0,	2,	1,	1,	0,	94
"WCWA","008823103","6","86YY",	76,	0,	1,	0,	0,	0,	77
"WCWA","008823103","6","87YY",	59,	0,	1,	0,	0,	0,	60
"WCWA","008823103","6","88Q1",	21,	0,	0,	0,	0,	0,	21
"WCWA","008823103","6","88Q2",	21,	0,	0,	0,	0,	0,	21
"WCWA","008823103","6","88Q3",	32,	1,	0,	0,	0,	0,	33
"WCWA","008823103","6","88Q4",	25,	0,	2,	1,	0,	0,	28
"WCWA","008823103","6","89Q1",	9,	0,	1,	0,	0,	0,	10
"WCWA","008823103","6","89Q2",	15,	0,	0,	0,	0,	0,	15
"WCWA","008823103","6","89Q3",	17,	0,	0,	0,	0,	0,	17
"WCWA","008823103","6","89Q4",	15,	0,	0,	0,	0,	0,	15
"W4RA","000081993","5","88Q3",	1,	0,	0,	0,	0,	0,	1
"XD4A","003462559","3","85YY",	26,	2,	36,	11,	0,	0,	75
"XD4A","003462559","3","86YY",	47,	0,	12,	2,	0,	0,	61
"XD4A","003462559","3","87YY",	33,	3,	5,	1,	0,	0,	42
"XD4A","003462559","3","88Q1",	13,	0,	0,	0,	0,	0,	13
"XD4A","003462559","3","88Q2",	13,	0,	2,	0,	0,	0,	15
"XD4A","003462559","3","88Q3",	13,	0,	0,	0,	0,	0,	13
"XD4A","003462559","3","88Q4",	13,	0,	0,	0,	0,	0,	13
"XD4A","003462559","3","89Q1",	4,	0,	0,	0,	0,	0,	4
"XD4A","003462559","3","89Q2",	8,	0,	0,	0,	0,	0,	8
"XD4A","003462559","3","89Q4",	1,	0,	17,	1,	0,	0,	19
"XVRA","009060598","5","85YY",	141,	1,	0,	2,	0,	0,	144
"XVRA","009060598","5","86YY",	122,	1,	0,	5,	0,	0,	128
"XVRA","009060598","5","87YY",	140,	0,	0,	4,	0,	0,	144
"XVRA","009060598","5","88Q1",	33,	0,	0,	2,	0,	0,	35
"XVRA","009060598","5","88Q2",	33,	1,	2,	1,	0,	0,	37
"XVRA","009060598","5","88Q3",	29,	0,	0,	2,	0,	0,	31
"XVRA","009060598","5","88Q4",	28,	0,	1,	0,	0,	0,	29
"XVRA","009060598","5","89Q1",	30,	0,	1,	0,	0,	0,	31
"XVRA","009060598","5","89Q2",	30,	0,	0,	1,	0,	0,	31
"XVRA","009060598","5","89Q3",	19,	0,	0,	1,	0,	0,	20
"XVRA","009060598","5","89Q4",	19,	1,	0,	0,	0,	0,	20
"XVRA","009060598","6","85YY",	154,	1,	0,	3,	0,	1,	159
"XVRA","009060598","6","86YY",	133,	0,	0,	5,	0,	0,	138
"XVRA","009060598","6","87YY",	140,	0,	0,	2,	0,	0,	142
"XVRA","009060598","6","88Q1",	32,	0,	0,	1,	0,	0,	33
"XVRA","009060598","6","88Q2",	32,	0,	0,	0,	0,	0,	32

"XVRA","009060598","6","88Q3",	29,	0,	0,	0,	0,	0,	29
"XVRA","009060598","6","88Q4",	29,	0,	0,	0,	0,	0,	29
"XVRA","009060598","6","89Q1",	30,	0,	0,	0,	0,	0,	30
"XVRA","009060598","6","89Q2",	31,	0,	0,	0,	0,	0,	31
"XVRA","009060598","6","89Q3",	19,	0,	0,	0,	0,	0,	19
"XVRA","009060598","6","89Q4",	19,	0,	0,	0,	0,	0,	19
"X68A","000261221","6","85YY",	172,	0,	0,	4,	0,	6,	182
"X68A","000261221","6","86YY",	125,	0,	0,	1,	0,	0,	126
"X68A","000261221","6","87YY",	116,	0,	3,	4,	0,	0,	123
"X68A","000261221","6","88Q1",	28,	0,	0,	0,	0,	0,	28
"X68A","000261221","6","88Q2",	24,	0,	0,	0,	0,	0,	24
"X68A","000261221","6","88Q3",	11,	0,	0,	0,	0,	0,	11
"X68A","000261221","6","88Q4",	11,	0,	0,	0,	0,	0,	11
"X68A","000261221","6","89Q1",	15,	0,	0,	0,	0,	0,	15
"X68A","000261221","6","89Q2",	13,	0,	0,	1,	0,	0,	14
"X68A","000261221","6","89Q3",	17,	0,	0,	0,	0,	0,	17
"X68A","000261221","6","89Q4",	17,	0,	0,	0,	0,	0,	17
"0AUA","010468387","2","87YY",	239,	0,	89,	1,	0,	34,	363
"0AUA","010468387","2","88Q1",	58,	0,	28,	0,	0,	0,	86
"0AUA","010468387","2","88Q2",	50,	0,	0,	2,	0,	0,	52
"0AUA","010468387","2","88Q3",	30,	0,	0,	1,	0,	0,	31
"0AUA","010468387","2","88Q4",	30,	0,	0,	0,	0,	1,	31
"0AUA","010468387","2","89Q1",	6,	0,	0,	0,	0,	0,	6
"0AUA","010468387","2","89Q4",	100,	0,	0,	0,	0,	0,	100
"0AUA","010468387","8","85YY",	460,	65,	0,	0,	0,	23,	548
"0AUA","010468387","8","86YY",	48,	0,	0,	0,	0,	0,	48
"0AUA","010468387","8","87YY",	121,	7,	0,	0,	0,	0,	128
"07BA","010378696","1","85YY",	36,	0,	0,	0,	2,	1,	39
"07BA","010378696","1","86YY",	17,	8,	0,	0,	0,	0,	25
"07BA","010378696","1","87YY",	10,	3,	0,	0,	0,	2,	15
"07BA","010378696","1","89Q1",	0,	1,	0,	0,	0,	0,	1
"07BA","010378696","1","89Q2",	2,	0,	0,	0,	0,	0,	2
"07BA","010378696","1","89Q3",	3,	0,	0,	0,	0,	0,	3
"07BA","010378696","1","89Q4",	4,	1,	0,	0,	0,	0,	5
"07BA","010378696","2","85YY",	32,	1,	3,	1,	0,	4,	41
"07BA","010378696","2","86YY",	16,	3,	0,	1,	0,	1,	21
"07BA","010378696","2","87YY",	9,	0,	0,	0,	0,	0,	9
"1QRA","001007911","7","85YY",	51,	0,	0,	0,	0,	12,	63
"1QRA","001007911","7","86YY",	83,	0,	0,	1,	0,	0,	84
"1QRA","001007911","7","87YY",	63,	0,	6,	2,	0,	0,	71
"1QRA","001007911","7","88Q1",	15,	0,	0,	4,	0,	0,	19
"1QRA","001007911","7","88Q2",	15,	0,	0,	0,	0,	0,	15
"1QRA","001007911","7","88Q3",	19,	0,	0,	0,	0,	0,	19
"1QRA","001007911","7","88Q4",	21,	0,	0,	12,	0,	0,	33
"1QRA","001007911","7","89Q1",	20,	0,	0,	7,	0,	0,	27
"1QRA","001007911","7","89Q2",	20,	1,	0,	2,	0,	0,	23
"1QRA","001007911","7","89Q3",	18,	0,	0,	1,	0,	13,	32
"1QRA","001007911","7","89Q4",	17,	0,	0,	3,	0,	0,	20
"32FA","011100735","3","85YY",	442,	12,	79,	22,	0,	1,	556
"32FA","011100735","3","86YY",	467,	35,	40,	21,	2,	0,	565
"32FA","011100735","3","87YY",	428,	29,	65,	10,	4,	1,	537
"32FA","011100735","3","88Q1",	61,	3,	0,	2,	0,	2,	68
"32FA","011100735","3","88Q2",	64,	3,	0,	0,	0,	0,	67
"32FA","011100735","3","88Q3",	39,	12,	7,	0,	0,	0,	58
"32FA","011100735","3","88Q4",	40,	6,	8,	0,	0,	1,	55

"32PA","011100735","3","89Q1",	21,	0,	13,	0,	0,	0,	34
"32PA","011100735","3","89Q2",	49,	0,	0,	0,	0,	0,	49
"32PA","011100735","3","89Q3",	56,	0,	0,	0,	0,	0,	56
"32PA","011100735","3","89Q4",	50,	0,	6,	0,	0,	0,	56
"32PA","011100735","7","87YY",	105,	14,	1,	2,	0,	0,	122
"32PA","011100735","7","88Q1",	52,	3,	0,	1,	0,	0,	56
"32PA","011100735","7","88Q2",	49,	4,	0,	0,	0,	0,	53
"32PA","011100735","7","88Q3",	60,	1,	9,	1,	0,	0,	71
"32PA","011100735","7","88Q4",	60,	0,	0,	0,	0,	0,	60
"32PA","011100735","7","89Q1",	45,	0,	0,	0,	0,	7,	52
"32PA","011100735","7","89Q2",	47,	1,	0,	3,	0,	0,	51
"32PA","011100735","7","89Q3",	56,	1,	0,	0,	0,	0,	57
"32PA","011100735","7","89Q4",	55,	0,	1,	0,	0,	0,	56
"4K3A","01004754 7","6","86YY",	20,	0,	0,	0,	0,	0,	20
"4K3A","01004754 7","6","87YY",	54,	0,	2,	0,	0,	0,	56
"4K3A","01004754 7","6","88Q1",	13,	0,	0,	0,	0,	0,	13
"4K3A","01004754 7","6","88Q2",	10,	0,	0,	0,	0,	0,	10
"4K3A","01004754 7","6","88Q3",	10,	0,	0,	0,	0,	0,	10
"4K3A","01004754 7","6","88Q4",	10,	0,	0,	0,	0,	0,	10
"4K3A","01004754 7","6","89Q1",	16,	1,	0,	1,	0,	0,	18
"4K3A","01004754 7","6","89Q2",	12,	0,	0,	0,	0,	0,	12
"4K3A","01004754 7","6","89Q3",	24,	0,	0,	0,	0,	1,	25
"4K3A","01004754 7","6","89Q4",	24,	0,	0,	1,	0,	0,	25
"4LVA","010152288","3","85YY",	2,	0,	0,	1,	0,	4,	7
"4LVA","010152288","3","87YY",	35,	0,	0,	1,	1,	0,	37
"4LVA","010152288","3","88Q1",	9,	0,	0,	0,	0,	0,	9
"4LVA","010152288","3","88Q2",	10,	0,	0,	0,	0,	0,	10
"4LVA","010152288","3","88Q3",	2,	0,	4,	0,	0,	0,	6
"4LVA","010152288","3","88Q4",	16,	1,	3,	0,	0,	1,	21
"4LVA","010152288","3","89Q1",	4,	0,	2,	0,	0,	0,	6
"4LVA","010152288","3","89Q2",	20,	0,	0,	0,	0,	0,	20
"4LVA","010152288","3","89Q3",	13,	0,	0,	0,	0,	0,	13
"4LVA","010152288","3","89Q4",	13,	0,	1,	0,	0,	3,	17
"4H3A","010088037","6","85YY",	41,	0,	23,	3,	0,	1,	68
"4H3A","010088037","6","86YY",	82,	0,	16,	4,	0,	0,	102
"4H3A","010088037","6","87YY",	48,	0,	1,	2,	0,	1,	52
"4H3A","010088037","6","88Q1",	10,	0,	2,	0,	0,	0,	12
"4H3A","010088037","6","88Q2",	13,	0,	1,	0,	0,	0,	14
"4H3A","010088037","6","88Q3",	11,	0,	2,	0,	0,	0,	13
"4H3A","010088037","6","88Q4",	10,	0,	1,	0,	0,	0,	11
"4H3A","010088037","6","89Q1",	15,	0,	1,	0,	0,	0,	16
"4H3A","010088037","6","89Q2",	15,	0,	0,	0,	0,	2,	17
"4H3A","010088037","6","89Q3",	18,	0,	0,	0,	0,	0,	18
"4H3A","010088037","6","89Q4",	17,	0,	0,	0,	0,	0,	17
"5BUA","010253212","6","85YY",	79,	0,	0,	0,	0,	0,	79
"5BUA","010253212","6","86YY",	66,	1,	0,	0,	0,	1,	68
"5BUA","010253212","6","87YY",	67,	0,	0,	3,	0,	0,	70
"5BUA","010253212","6","88Q1",	19,	0,	0,	0,	0,	0,	19
"5BUA","010253212","6","88Q2",	19,	0,	0,	0,	0,	0,	19
"5BUA","010253212","6","88Q3",	35,	0,	0,	0,	0,	0,	35
"5BUA","010253212","6","88Q4",	31,	0,	0,	0,	0,	0,	31
"5BUA","010253212","6","89Q1",	22,	0,	0,	0,	0,	0,	22
"5BUA","010253212","6","89Q2",	21,	0,	0,	0,	0,	0,	21
"5BUA","010253212","6","89Q3",	19,	0,	0,	0,	0,	0,	19
"5BUA","010253212","6","89Q4",	22,	0,	0,	2,	0,	0,	24

"5DKA","001827698","3","85YY",	307,	7,	1,	1,	0,	0,	316
"5DKA","001827698","3","86YY",	404,	5,	1,	6,	0,	0,	416
"5DKA","001827698","3","87YY",	364,	7,	7,	3,	0,	0,	381
"5DKA","001827698","3","88Q1",	114,	3,	0,	1,	0,	0,	118
"5DKA","001827698","3","88Q2",	110,	1,	0,	0,	0,	0,	111
"5DKA","001827698","3","88Q3",	109,	0,	0,	0,	0,	0,	109
"5DKA","001827698","3","88Q4",	90,	3,	0,	1,	0,	0,	94
"5DKA","001827698","3","89Q1",	84,	1,	0,	4,	0,	0,	89
"5DKA","001827698","3","89Q2",	85,	1,	0,	0,	0,	0,	86
"5DKA","001827698","3","89Q3",	90,	0,	0,	0,	0,	0,	90
"5DKA","001827698","3","89Q4",	75,	0,	0,	0,	0,	0,	75
"5DKA","001827698","6","85YY",	573,	0,	17,	2,	0,	0,	592
"5DKA","001827698","6","86YY",	304,	0,	2,	3,	0,	0,	309
"5DKA","001827698","6","87YY",	218,	0,	0,	4,	0,	0,	222
"5DKA","001827698","6","88Q1",	54,	0,	0,	0,	0,	0,	54
"5DKA","001827698","6","88Q2",	40,	0,	0,	0,	0,	0,	40
"5DKA","001827698","6","88Q3",	36,	0,	0,	0,	0,	0,	36
"5DKA","001827698","6","88Q4",	61,	0,	0,	0,	0,	0,	61
"5DKA","001827698","6","89Q1",	50,	0,	0,	1,	0,	0,	51
"5DKA","001827698","6","89Q2",	55,	0,	0,	3,	0,	0,	58
"5DKA","001827698","6","89Q3",	65,	0,	0,	0,	0,	0,	65
"5DKA","001827698","6","89Q4",	71,	0,	0,	0,	0,	0,	71
"5QFA","010037291","1","85YY",	140,	8,	3,	11,	0,	1,	163
"5QFA","010037291","1","86YY",	150,	3,	12,	7,	0,	0,	172
"5QFA","010037291","1","87YY",	104,	11,	48,	7,	0,	28,	198
"5QFA","010037291","1","88Q1",	44,	0,	6,	0,	0,	0,	50
"5QFA","010037291","1","88Q2",	43,	0,	5,	6,	0,	0,	54
"5QFA","010037291","1","88Q3",	50,	2,	1,	2,	0,	0,	55
"5QFA","010037291","1","88Q4",	50,	1,	2,	5,	0,	0,	58
"5QFA","010037291","1","89Q1",	37,	0,	3,	3,	0,	0,	43
"5QFA","010037291","1","89Q2",	31,	1,	0,	4,	0,	0,	36
"5QFA","010037291","1","89Q3",	35,	3,	0,	5,	0,	0,	43
"5QFA","010037291","1","89Q4",	30,	0,	0,	6,	0,	0,	36
"5QFA","010037291","6","85YY",	219,	5,	11,	9,	0,	0,	244
"5QFA","010037291","6","86YY",	166,	6,	26,	27,	0,	0,	225
"5QFA","010037291","6","87YY",	109,	2,	60,	5,	0,	0,	176
"5QFA","010037291","6","88Q1",	31,	1,	6,	2,	0,	0,	40
"5QFA","010037291","6","88Q2",	38,	2,	0,	3,	0,	0,	43
"5QFA","010037291","6","88Q3",	80,	0,	1,	4,	0,	0,	85
"5QFA","010037291","6","88Q4",	90,	3,	3,	2,	0,	0,	98
"5QFA","010037291","6","89Q1",	43,	2,	1,	0,	0,	2,	48
"5QFA","010037291","6","89Q2",	45,	2,	17,	4,	0,	0,	68
"5QFA","010037291","6","89Q3",	30,	0,	3,	3,	0,	0,	36
"5QFA","010037291","6","89Q4",	35,	1,	0,	0,	0,	0,	36
"5R1A","012458341","3","85YY",	69,	4,	0,	0,	0,	0,	73
"5R1A","012458341","3","86YY",	64,	3,	0,	1,	0,	2,	70
"5R1A","012458341","3","87YY",	126,	6,	0,	4,	2,	10,	148
"5R1A","012458341","3","88Q1",	33,	5,	0,	0,	0,	0,	38
"5R1A","012458341","3","88Q2",	45,	3,	0,	0,	0,	0,	48
"5R1A","012458341","3","88Q3",	40,	2,	0,	0,	0,	0,	42
"5R1A","012458341","3","88Q4",	20,	9,	0,	1,	0,	0,	30
"5R1A","012458341","3","89Q1",	29,	2,	0,	0,	0,	0,	31
"5R1A","012458341","3","89Q2",	20,	0,	0,	0,	0,	0,	20
"5R1A","012458341","3","89Q3",	13,	0,	0,	0,	0,	0,	13
"5R1A","012458341","3","89Q4",	14,	2,	0,	0,	0,	0,	16

FILE: NPGS8589 ASC A1

"6FNA","010533444","6","85YY",	21,	2,	18,	0,	0,	4,	45
"6FNA","010533444","6","86YY",	35,	1,	1,	0,	0,	0,	37
"6FNA","010533444","6","87YY",	18,	1,	0,	1,	0,	0,	20
"6FNA","010533444","6","88Q1",	1,	0,	6,	1,	0,	0,	8
"6FNA","010533444","6","88Q2",	3,	0,	0,	0,	0,	0,	3
"6FNA","010533444","6","88Q3",	1,	0,	4,	0,	0,	0,	5
"6FNA","010533444","6","88Q4",	1,	0,	4,	0,	0,	0,	5
"6FNA","010533444","6","89Q1",	1,	0,	0,	0,	0,	0,	1
"6FNA","010533444","6","89Q4",	2,	0,	0,	0,	0,	0,	2

APPENDIX D

VTMR ANALYSIS FOR THE LAST 8 QUARTER (FY 88,89) OF DOP OUTPUTS

1. Column definitions:

   a. C1: Serial number for DLR

   b. C2: DOP code

   c. C3: DOP output for 1st quarter of FY 88

   d. C4: " " " 2nd " " "

   e. C5: " " " 3rd " " "

   f. C6: " " " 4th " " "

   g. C7: DOP output for 1st quarter of FY 89

   h. C8: " " " 2nd " " "

   i. C9: " " " 3rd " " "

   j. C10: " " " 4th " " "

   k. C13: VTMR for DOP outputs

2. MINITAB program that produced this output:

```
MTB > read 'qtrsvtmr' c1-c10;
SUBC> format(f4.0,1x,a3,1x,8(f3.0,1x)).
    144 ROWS READ
* 52 blank fields converted to *
```

ROW	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
1	1100	PTZ	0	0	0	0	0	2	3	4
2	1210	NAZ	20	20	59	17	51	33	30	30
3	*	NOZ	0	5	0	0	0	0	0	0
4	1212	NAZ	52	52	48	51	24	57	70	90

```
  . . .

MTB > let c11=(c3+c4+c5+C6+c7+c8+c9+c10)/8
MTB > let c12=((c3-c11)**2+(c4-c11)**2+(c5-c11)**2+(c6-c11)**2+(c7-c11)**2+(c8-c
    > 11)**2+(c9-c11)**2+(c10-c11)**2)/7
MTB > let c13=c12/c11**2
MTB > let c13=c12/c11**2
                    J
*** VALUES OUT OF BOUNDS DURING OPERATION AT J
    MISSING RETURNED 1 TIMES

MTB > print c1-c13
```

ROW	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
1	1100	PTZ	0	0	0	0	0	2	3	4
2	1210	NAZ	20	20	59	17	51	33	30	30
3	*	NOZ	0	5	0	0	0	0	0	0
4	1212	NAZ	52	52	48	51	24	57	70	90
5	1259	NAZ	0	0	1	0	0	0	0	0
6	1286	NAZ	20	20	27	30	39	38	20	15
7	2019	NNZ	13	13	13	13	4	8	0	1
8	2041	NOZ	14	11	5	9	12	4	9	6
9	*	NNZ	15	18	7	7	28	25	32	19
10	2088	NNZ	7	14	10	13	8	16	11	20
11	*	NOZ	9	8	11	18	8	1	10	11
12	2118	NBZ	10	10	11	14	30	21	30	28
13	2119	NNZ	15	31	16	14	26	29	27	28
14	*	NOZ	39	40	18	7	13	31	26	29
15	2097	NOZ	15	16	33	28	12	20	8	2
16	*	NNZ	15	21	33	33	19	15	18	11

ROW	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C13
1	1100	PTZ	0	0	0	0	0	2	3	4	2.13051
2	1210	NAZ	20	20	59	17	51	33	30	30	0.21775
3	*	NOZ	0	5	0	0	0	0	0	0	8.00000
4	1212	NAZ	52	52	48	51	24	57	70	90	0.11576
5	1259	NAZ	0	0	1	0	0	0	0	0	8.00000
6	1286	NAZ	20	20	27	30	39	38	20	15	0.11698
7	2019	NNZ	13	13	13	13	4	8	0	1	0.49528
8	2041	NOZ	14	11	5	9	12	4	9	6	0.16327
9	*	NNZ	15	18	7	7	28	25	32	19	0.23693
10	2088	NNZ	7	14	10	13	8	16	11	20	0.12115
11	*	NOZ	9	8	11	18	8	1	10	11	0.24377
12	2118	NBZ	10	10	11	14	30	21	30	28	0.22263
13	2119	NNZ	15	31	16	14	26	29	27	28	0.09078
14	*	NOZ	39	40	18	7	13	31	26	29	0.21962
15	2097	NOZ	15	16	33	28	12	20	8	2	0.36737
16	*	NNZ	15	21	33	33	19	15	18	11	0.15867
17	2315	NOZ	13	13	21	20	35	35	31	32	0.14034
18	*	PTZ	14	14	21	20	24	15	14	14	0.05635
19	2319	NNZ	29	27	29	15	11	8	7	8	0.35108
20	*	NDZ	28	28	29	27	46	37	26	21	0.06549
21	2440	NDZ	7	6	12	12	7	10	11	3	0.14632
22	*	NNZ	9	6	9	8	12	5	16	12	0.13859
23	2704	NNZ	21	34	28	32	14	22	56	22	0.20048
24	*	NDZ	1	3	3	9	3	2	4	5	0.42159
25	2750	NDZ	24	25	55	52	53	105	54	50	0.22707
26	*	NNZ	26	27	49	54	73	80	57	50	0.13567
27	2763	NDZ	52	49	60	60	45	47	56	55	0.01160
28	*	NNZ	61	64	39	40	21	49	56	50	0.08649
29	2775	PTZ	44	43	50	50	37	31	35	30	0.03929
30	*	NOZ	31	38	80	90	43	45	30	35	0.21991
31	2796	NNZ	9	10	2	16	4	20	13	13	0.30062
32	3017	NOZ	124	121	171	121	101	100	100	108	0.03984
33	3018	NOZ	45	38	25	25	25	45	35	30	0.06568
34	*	NBZ	41	40	60	61	54	54	60	48	0.02603
35	3024	NOZ	102	98	85	64	8	9	47	48	0.40534
36	*	NBZ	0	0	23	15	8	8	49	48	1.09744
37	3025	NBZ	54	61	85	72	46	46	36	36	0.10139
38	*	NOZ	5	19	7	43	14	21	6	22	0.53334
39	3103	NOZ	28	24	11	11	15	13	17	17	0.12951
40	3107	NOZ	21	21	32	25	9	15	17	15	0.13239
41	3270	NBZ	21	22	8	17	24	12	5	9	0.23868
42	*	NOZ	6	30	9	26	11	10	4	3	0.66594
43	3311	NOZ	54	40	36	61	50	55	65	71	0.04879
44	*	NNZ	114	110	109	90	84	85	90	75	0.02316
45	3400	NBZ	30	30	29	30	26	26	27	26	0.00474
46	3442	NBZ	92	52	18	18	52	52	34	67	0.26776
47	3444	NBZ	5	16	12	13	6	3	1	3	0.56174
48	3452	NBZ	25	11	11	10	9	10	9	14	0.18645
49	3486	NBZ	58	50	30	30	6	0	0	100	1.01267
50	3616	NAZ	2	12	7	19	17	11	18	18	0.22316
51	3720	NOZ	1	3	1	1	1	0	0	2	0.77601
52	3732	NOZ	10	13	11	10	15	15	18	17	0.05223
53	3772	NOZ	13	10	10	10	16	12	24	24	0.16197
54	3782	NOZ	19	19	35	31	22	21	19	22	0.06726
55	4139	NBZ	4	8	11	4	10	20	10	10	0.27121
56	*	NDZ	9	4	5	6	4	5	5	13	0.23859
57	4143	NBZ	22	23	28	23	44	31	64	61	0.21789

58	4148	NAZ	121	121	146	146	43	43	132	132	0.14950
59	4301	NOZ	32	32	29	29	30	31	19	19	0.03691
60	*	NAZ	33	33	29	28	30	30	19	19	0.04116
61	4326	NAZ	36	37	20	22	37	43	23	23	0.08892
62	*	NOZ	41	15	5	7	25	12	6	6	0.74128
63	4347	NOZ	100	131	106	100	91	90	118	117	0.01809
64	*	NBZ	100	99	100	99	91	92	113	123	0.01108
65	4365	NOZ	40	75	100	50	49	105	31	60	0.18277
66	*	NAZ	90	80	151	156	104	156	199	201	0.10746
67	4421	NNZ	0	0	0	0	0	3	46	45	3.15126
68	*	NDZ	26	0	0	0	0	5	67	0	3.79794
69	4436	NOZ	10	10	10	10	16	8	10	35	0.43084
70	*	NAZ	40	35	40	31	60	60	56	36	0.07116
71	4437	NOZ	35	35	76	77	50	51	90	121	0.19865
72	*	NAZ	35	35	75	75	51	51	135	134	0.29901
73	4604	NOZ	10	9	3	2	4	11	6	3	0.36921
74	4862	NDZ	48	35	31	34	3	1	0	0	1.09537
75	*	FIZ	20	20	27	27	0	0	0	0	1.19356
76	4874	NBZ	84	73	39	66	30	29	27	27	0.25245
77	5144	FIZ	3	3	3	3	3	3	12	12	0.62974
78	*	NDZ	3	3	3	7	7	5	13	15	0.44315
79	5167	FIZ	28	28	25	25	21	21	20	20	0.02121
80	*	NDZ	26	25	38	41	24	27	8	8	0.23744
81	5173	FIZ	18	3	3	3	24	14	14	29	0.44313
82	*	NDZ	19	17	19	11	25	14	45	50	0.33783
83	5190	NDZ	70	17	3	22	30	195	42	16	1.58942
84	*	FIZ	43	47	100	81	51	57	25	14	0.28516
85	5208	NDZ	19	13	12	12	12	15	19	26	0.09821
86	*	NNZ	11	10	10	10	20	21	27	26	0.19509
87	5248	NAZ	14	9	9	5	5	5	13	7	0.18305
88	5250	NAZ	2	5	0	0	0	0	0	0	4.26822
89	5254	NDZ	4	2	3	4	2	0	8	8	0.54110
90	*	NAZ	2	4	3	0	0	0	0	0	2.13051
91	5330	NDZ	2	4	14	13	20	15	9	5	0.37461
92	*	NAZ	15	15	40	30	15	10	10	10	0.36827
93	5402	NDZ	3	7	11	18	5	5	4	3	0.54227
94	*	NAZ	3	2	19	24	14	4	9	0	0.87751
95	5415	NDZ	15	15	19	21	20	20	18	17	0.01604
96	5450	NOZ	60	60	85	84	51	30	37	47	0.12400
97	*	NAZ	70	111	110	151	103	100	90	75	0.06192
98	5455	NDZ	5	5	0	0	0	1	0	0	2.71074
99	*	NAZ	15	15	0	1	3	1	0	0	2.29784
100	6013	NOZ	10	8	9	7	10	10	6	10	0.03265
101	6106	FIZ	2	2	20	20	5	5	0	0	1.54732
102	6153	FIZ	25	12	12	13	26	26	20	10	0.15079
103	6155	FIZ	32	32	30	30	32	32	33	32	0.00112
104	*	NDZ	14	25	21	17	46	43	44	32	0.18039
105	6171	NDZ	26	24	15	11	6	11	15	18	0.18400
106	*	FIZ	25	18	10	9	20	15	10	10	0.16288
107	6256	NDZ	3	3	5	4	1	0	2	1	0.50336
108	6356	NBZ	7	7	8	4	6	5	8	6	0.04877
109	6504	NNZ	13	13	7	5	12	31	20	32	0.37725
110	6719	FIZ	3	2	4	2	2	2	4	2	0.12180
111	6817	NNZ	12	11	21	13	15	15	20	20	0.06172
112	*	NOZ	12	10	12	13	14	14	10	10	0.02115
113	6825	NNZ	2	20	12	10	9	12	22	22	0.27386
114	*	NOZ	33	28	9	8	15	9	5	9	0.50824
115	6827	NNZ	5	2	15	14	5	5	4	4	0.52518
116	*	NOZ	17	17	15	14	4	4	3	3	0.47476
117	7434	FIZ	42	36	30	30	31	31	27	27	0.02487

118	*	NOZ	14	4	20	30	31	31	27	26	0.17824
119	7436	NOZ	2	3	0	2	9	2	7	8	0.66221
120	*	PIZ	2	2	8	6	3	6	25	25	1.02065
121	9003	PIZ	1	4	1	0	0	0	0	0	3.42857
122	*	NOZ	3	4	1	5	3	2	1	3	0.25502
123	9025	NOZ	1	1	2	2	6	8	3	3	0.58833
124	*	NBZ	3	1	1	1	0	0	0	0	1.90476
125	9038	NOZ	0	0	0	0	0	0	0	0	*
126	*	NBZ	0	0	4	2	0	0	1	0	2.77551
127	*	NAZ	0	1	0	0	1	1	3	3	1.22751
128	3314	NAZ	3	1	7	5	0	0	6	4	0.69653
129	1	NOZ	13	14	44	42	38	48	49	48	0.16341
130	2	NNZ	1	0	0	0	0	0	1	1	1.90476
131	3	NBZ	26	45	49	27	49	31	42	54	0.07290
132	*	NOZ	27	36	26	25	20	30	17	27	0.04987
133	4	NAZ	0	0	0	1	2	0	0	0	3.93651
134	5	PIZ	49	34	47	47	50	44	36	38	0.02096
135	*	NDZ	36	33	40	35	36	37	40	40	0.00507
136	6	NAZ	501	500	500	501	453	451	455	375	0.00888
137	7	NBZ	64	70	77	52	48	51	57	66	0.02860
138	*	NOZ	0	0	8	13	6	3	11	14	0.65549
139	8	NAZ	29	17	45	44	67	33	65	65	0.16923
140	9	PIZ	10	10	15	14	31	18	6	16	0.25270
141	*	NNZ	14	13	16	11	20	25	40	30	0.22308
142	10	NNZ	6	7	4	10	12	4	4	4	0.23859
143	*	NOZ	5	5	1	5	8	4	8	12	0.30159
144	11	NNZ	33	45	40	20	29	20	13	14	0.19874

APPENDIX E

ANALYSIS OF THE SURVEY RATES FOR 84 AVIATION DLRs FOR EACH DOP AND NIIN

1. Column definition:

   a. C1: Serial number

   b. C2: Overall Survey Rate

   c. C3: Survey Rate for DOP 1

   d. C4: " " " DOP 2

   f. C5: " " " DOP 3

   g. C6: " " " DOP 5

   h. C7: " " " DOP 6

   i. C8: " " " DOP 7

   j. C9: " " " DOP 8

   k. C11: Mean Overall Survey Rate for 84 aviation DLRs

   l. C12: " " " " " DOP 1

   m. C13: " " " " " DOP 2

   n. C14: " " " " " DOP 3

   o. C15: " " " " " DOP 5

   p. C16: " " " " " DOP 6

   r. C17: " " " " " DOP 7

   s. C18: " " " " " DOP 8

2. Each survey rate for each NIIN was computed by calculator.

3. MINITAB program that produced to compute Mean Survey Rate:

```
MTB > read 'sonana' c1-c9;
SUBC> format(f4.0,2x,8(f6.0,1x)).
     84 ROWS READ
* 456 blank fields converted to *

 ROW      C1          C2          C3          C4          C5          C6          C7

   1    1100    0.116400    0.059300           *           *           *           *
   2    1210    0.685800           *           *           *    0.363700    0.190000
   3    1212    0.006100           *           *           *    0.006100           *
   4    1259    0.000000           *           *    0.0000000           *           *
  . . .

 ROW          C8          C9

   1    0.065500           *
   2           *           *
   3           *           *
   4           *           *
  . . .
MTB > sort c1,c2-c9,c10-c18
MTB > mean c11
   MEAN     =     0.036961
MTB > mean c12
   MEAN     =     0.033489
MTB > mean c13
   MEAN     =     0.051800
MTB > mean c14
   MEAN     =     0.014328
MTB > mean c15
   MEAN     =     0.047906
MTB > mean c16
   MEAN     =     0.030722
MTB > mean c17
   MEAN     =     0.024958
MTB > mean c18
   MEAN     =      0.10270
MTB > print c10-c18
```

ROW	C10	C11	C12	C13	C14	C15	C16	C17	C18
1	1100	0.116400	0.059300	*	*	*	*	0.065500	*
2	1210	0.685800	*	*	*	0.363700	0.190000	*	*
3	1212	0.006100	*	*	*	0.006100	*	*	*
4	1259	0.000000	*	*	0.0000000	*	*	*	*
5	1286	0.008500	*	*	*	0.008500	*	*	*
6	2019	0.028400	*	*	0.0284000	*	*	*	*
7	2041	0.035600	*	*	0.0462000	*	0.010800	*	*
8	2088	0.010800	*	*	0.0052000	*	0.016900	*	*
9	2097	0.017500	*	*	0.0053000	*	0.156000	*	*
10	2118	0.004400	*	0.004400	*	*	*	*	*
11	2119	0.003600	*	*	0.0025000	*	0.004700	*	*
12	2315	0.001500	0.003600	*	*	*	0.000000	*	*
13	2319	0.050200	*	*	0.0184000	*	*	*	*
14	2440	0.034900	*	*	0.0324000	*	*	*	*
15	2704	0.003200	*	*	0.0034000	*	*	0.000000	*
16	2750	0.025900	*	*	0.0303000	*	*	0.016500	*
17	2763	0.052300	*	*	*	*	*	0.043300	*
18	2775	0.032000	0.032000	*	*	*	0.026300	*	*
19	2796	0.008000	*	*	0.0080000	*	*	*	*
20	3017	0.004700	*	*	*	*	0.004700	*	*
21	3018	*	0.001100	*	*	*	0.000000	*	*
22	3024	0.001200	*	0.005500	*	*	0.001800	*	*
23	3025	0.002400	*	0.002800	*	*	0.000000	*	*
24	3103	0.000000	*	*	*	*	0.000000	*	*
25	3107	0.004700	*	*	*	*	0.004700	*	*
26	3270	0.001900	*	0.003300	*	*	0.000000	*	*
27	3311	0.011100	*	*	0.0150000	*	0.028400	*	*
28	3314	0.003500	*	*	*	*	0.003500	*	*
29	3400	0.002600	*	*	*	*	0.002600	*	*
30	3442	0.116100	*	0.116100	*	*	*	*	*
31	3444	0.010700	*	*	*	*	*	*	*
32	3452	0.233700	0.233700	*	*	*	*	*	*
33	3486	0.059300	*	*	*	*	*	*	0.102700
34	3616	0.059100	*	*	*	0.059100	*	*	*
35	3720	0.045900	*	*	*	*	0.045900	*	*
36	3732	0.000000	*	*	*	*	0.000000	*	*
37	3772	0.005100	*	*	*	*	0.005100	*	*
38	3782	0.002400	*	*	*	*	0.002400	*	*
39	4139	0.022800	*	0.037000	*	*	*	0.007800	*
40	4143	0.000000	*	0.000000	*	*	*	*	*
41	4148	0.005900	*	*	*	0.005900	*	*	*
42	4301	0.003900	*	*	*	0.006300	0.001500	*	*
43	4326	0.012300	*	*	*	0.010400	0.013400	*	*
44	4347	0.007000	*	0.010900	*	*	0.003000	0.000000	*
45	4365	0.001700	*	*	*	0.001600	0.001800	*	*
46	4421	0.024000	*	*	0.0398000	*	*	0.003100	*
47	4436	0.010200	*	*	*	0.013100	0.000000	*	*
48	4437	0.008800	*	*	*	0.010400	0.006900	*	*
49	4604	0.000000	*	*	*	*	0.000000	*	*
50	4721	0.009400	*	*	0.0201000	*	0.000000	0.000000	*
51	4862	0.010100	0.002700	*	*	*	*	0.007600	*
52	4874	0.007800	*	0.007800	*	*	*	*	*
53	5144	0.023400	0.045400	*	*	*	*	0.011900	*
54	5167	0.070300	0.038800	*	*	*	*	0.076400	*
55	5173	0.005600	0.006600	*	*	*	*	0.004500	*

ROW	C10	C11	C12	C13	C14	C15	C16	C17	C18
56	5190	0.027600	0.011700	*	*	*	*	0.048200	*
57	5208	0.030600	*	*	0.0029000	*	*	0.053600	*
58	5220	0.114500	*	*	*	0.114500	*	*	*
59	5248	0.013200	*	*	*	*	0.013300	*	*
60	5250	0.006600	*	*	*	0.023000	*	0.000000	*
61	5254	0.008400	*	*	*	0.000000	*	0.011000	*
62	5330	0.003700	*	*	*	0.002800	*	0.005700	*
63	5402	0.056100	*	*	*	0.018200	*	0.154700	*
64	5415	0.002900	*	*	*	*	*	0.002900	*
65	5430	0.046200	*	*	*	0.007300	0.089100	*	*
66	5455	0.010100	*	*	*	0.011400	*	*	*
67	6013	0.247000	*	*	*	*	0.247000	*	*
68	6106	0.003800	0.003800	*	*	*	*	*	*
69	6153	0.024500	0.024600	*	*	*	*	0.000000	*
70	6155	0.007000	0.001300	*	*	*	*	0.004700	*
71	6166	0.045500	0.021200	*	*	*	*	0.074700	*
72	6171	0.003000	0.000000	*	*	*	*	0.006900	*
73	6256	0.000000	*	*	*	*	*	0.000000	*
74	6356	0.017400	*	0.011700	*	*	0.000000	*	*
75	6504	0.000000	*	*	0.0000000	*	*	*	*
76	6719	0.024300	0.024300	*	*	*	*	*	*
77	6817	0.127800	*	0.251700	*	*	*	*	*
78	6825	0.002300	*	*	0.0000000	*	0.004100	*	*
79	6827	0.000000	*	*	0.0000000	*	0.000000	*	*
80	7434	0.000700	0.001200	*	*	*	0.000000	*	*
81	7436	0.043800	0.000000	*	*	*	0.096400	*	*
82	9003	0.034000	0.125000	*	*	*	0.000000	*	*
83	9025	0.076900	*	0.000000	*	*	0.115300	*	*
84	9038	0.177200	*	0.222200	*	0.200000	0.133300	*	*

```
MTB > describe c11

                N       N*     MEAN   MEDIAN   TRMEAN    STDEV   SEMEAN
C11            83        1  0.03696  0.01010  0.02299  0.08611  0.00945

               MIN      MAX       Q1       Q3
C11        0.00000  0.68580  0.00350  0.03490
```

```
MTB > hist c11

Histogram of C11   N = 83   N* = 1
Each * represents 2 obs.

Midpoint    Count
    0.00       56  ****************************
    0.05       18  *********
    0.10        4  **
    0.15        1  *
    0.20        1  *
    0.25        2  *
    0.30        0
    0.35        0
    0.40        0
    0.45        0
    0.50        0
    0.55        0
    0.60        0
    0.65        0
    0.70        1  *
```

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